

# SUPPLEMENT.

## The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2469.—VOL. LII.

LONDON, SATURDAY, DECEMBER 16, 1882.

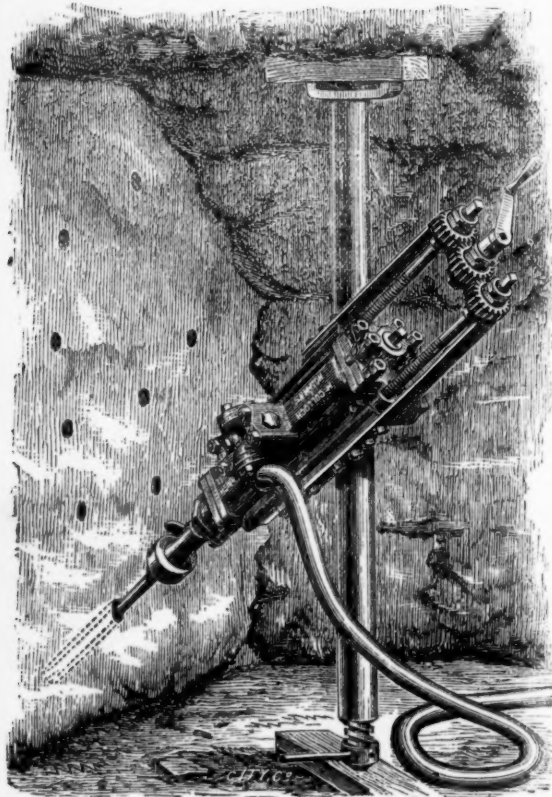
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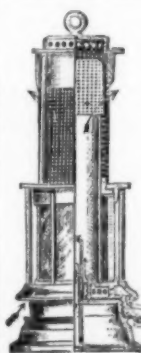
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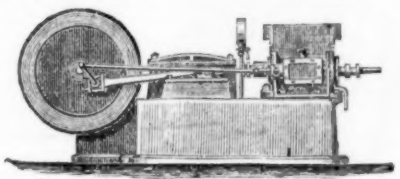
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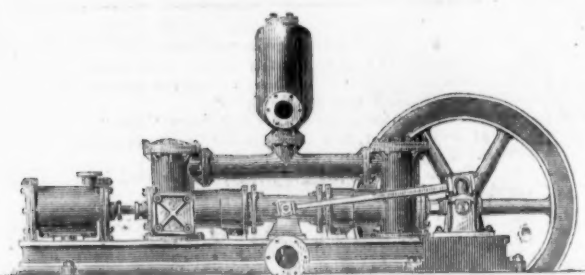
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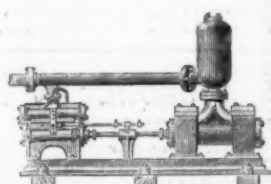


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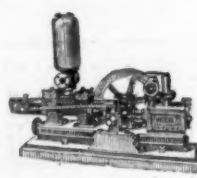
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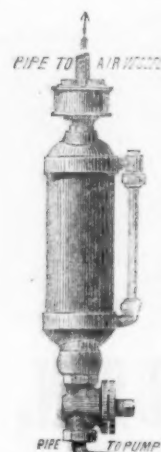
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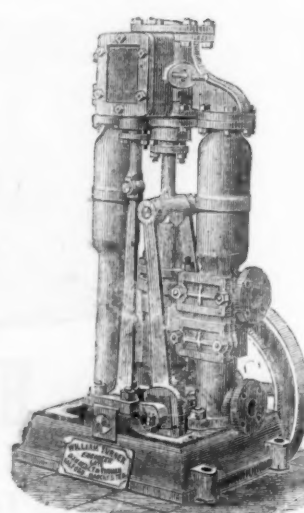
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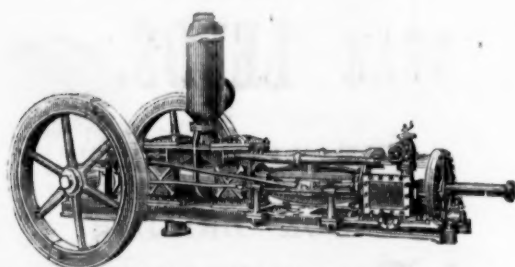
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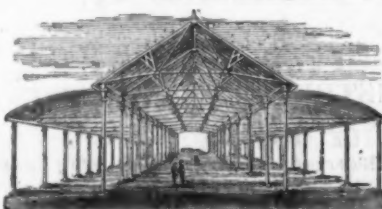
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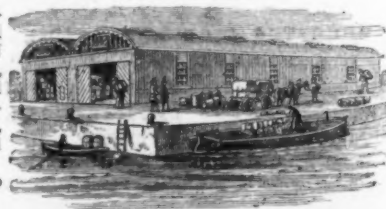
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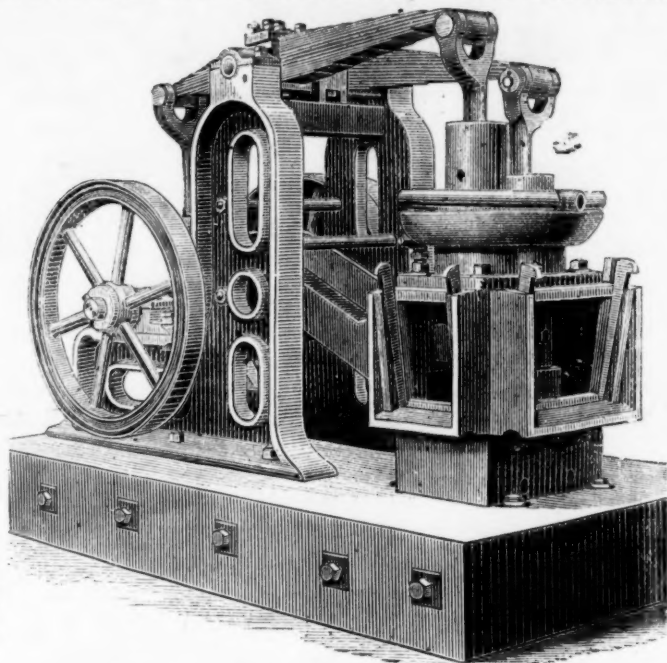
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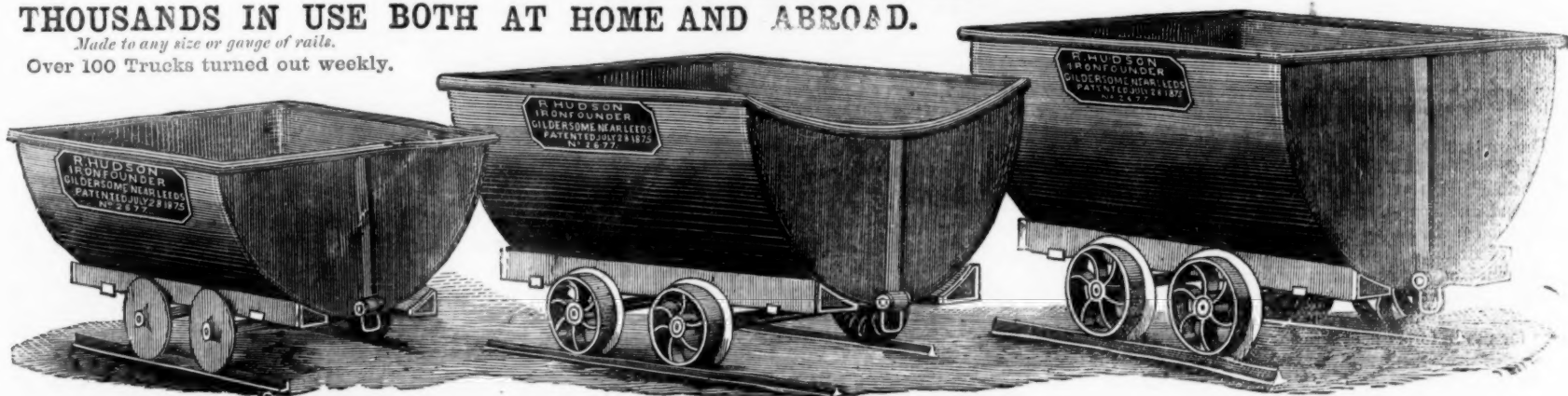
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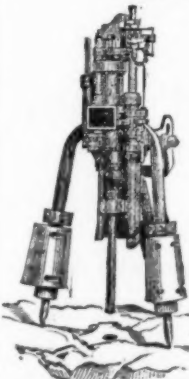
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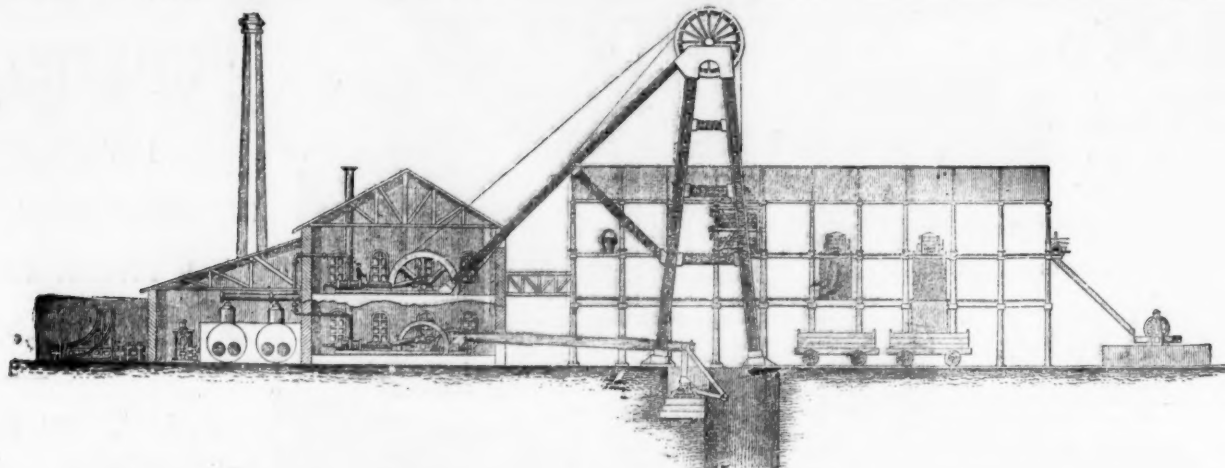
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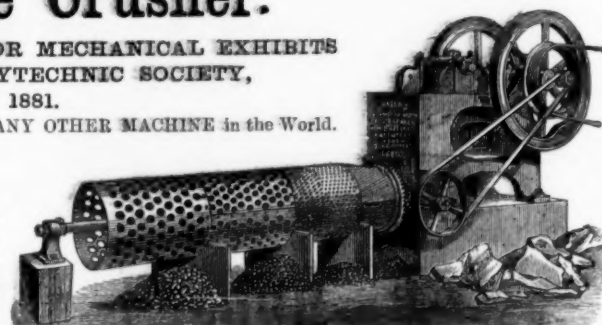
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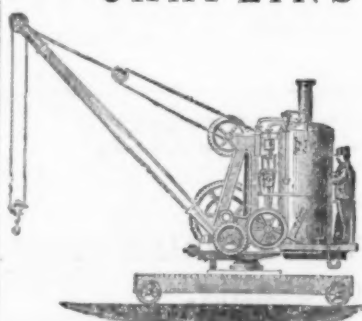
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## Original Correspondence.

## THE GOLD COAST.

SIR,—In December or January last there was considerable interest excited among shareholders in Gold Coast Mines by the announcement that a syndicate had been formed for the survey and construction of a railway from the sea coast to the gold mining district of Wassau. I have kept on the look-out for some information regarding the result of the survey and the prospects of the railway, but I have not observed any further mention of the matter. Can any reader give information? I think also some information is due to the public about the Effuuta Mine. There have been one or two mine reports in your columns. The last one was dated July 12 last. According to it, stamping was to begin on the following day. Has gold been received, and if so what quantity? T.

## SOUTH-EAST WYNAAD ESTATES AND GOLD MINING COMPANY.

SIR,—On Tuesday the shareholders of the above company are summoned by the directors to attend the general annual meeting, and to receive their reports. It is neither my intention nor my desire now to comment on these reports, but simply to draw the attention of all interested to the following figures which require explanation. Take first the items described in the balance-sheet to May 31, 1881, as "outlay on mining account, &c.," is 15,316l. 6s. 4d., and also to May 31, 1882, is 15,998l. 7s., making in all to date of account 31,314l. 13s. 4d. Will the directors be good enough to explain how much of this sum has been expended in Indian salaries, how much on machinery, roads, and practical mining? What do the agents get? The manager, accountant, superintendent, European mining captains and miners, &c.?

To the above sum of 31,314l. 13s. 4d. must be added for "London expenses" 4678l. 9s. 9d. The two totals thus exhibited make 35,993l. 3s. 1d. out of a working capital of 40,000l., leaving on June 1 last about 4000l., which I imagine has been expended, and an additional 4000l. has apparently been borrowed. When Mr. Cooper came home in April he estimated the total output of stone ready for crushing at 25,000 tons, and by his report now under consideration it has been increased to 30,000 tons. Can the directors inform us how it is that the greater portion of this has not been crushed? How is it that out of this great reserve only 580 tons have been crushed, although Mr. Cooper says that "with the exception of a few stoppages for repairs and alterations crushing has been going on regularly at Elizabeth mill night and day since the middle of June?"

Being a shareholder also in the Perseverance company, I would like to know what has become of all the rich stone that was stored away in a house expressly built to keep it secure from thieves? London, Dec. 12. A PERPLEXED SHAREHOLDER.

## GOLD AND DIAMOND FIELDS OF SOUTH AFRICA.

SIR,—The news which has been received here saying the chief Mapoch has dispatched 300 Boers to the happy hunting grounds has caused no sorrow. Every person appears to look on the affair as a just retribution for the indiscriminate manner in which the Boers have shot down the blacks all around the Transvaal border. It is generally considered that great troubles are in store for the Transvaal. There is a report that payable gold has been found about 300 miles north of Pretoria by a person named Johnson. I know that Johnson went out prospecting in that direction about 14 months ago, but I cannot vouch for the truth of his having found payable gold. There has been so many false reports as to the discovery of a payable gold field in the Transvaal that scarcely any person here would believe it if a rich field were discovered to-morrow. I hear that a party is about to start the old Marabastad Mine, but if the late manager could do no good with it I do not think it can be of any value.

From the old diggings there is not much to report. At Pilgrim's Rest a party has sunk through what is known as a rotten reef, proving it to be merely a superficial deposit. However, from my own knowledge of the place I am able to say that if the proprietors spend about 100,000l. in diverting the course of the Bluid River in two places there is sufficient payable ground to give them a fair percentage on their outlay. At Mac Mac there is little or nothing doing. At Spitzkop there is a steady improvement, but there are only a very few people there. The work is of a most primitive character, and not calculated to produce the satisfactory results.

Here in Kimberley things are still very dull, but as I informed you in my last the clouds are lifting—that is to say many of the companies that I so strongly condemned from the commencement are in course of liquidation, and several others will follow in the course of a month or so. I informed you in my last that the Mining Board was slightly convalescent, but there are again signs of a fresh outbreak, and I expect shortly to have more duels to report. There is always some little excitement here, the latest being amongst the directors and shareholders of the Barnato Diamond Mining Company. The scene at their last meeting was disgraceful in the extreme, and demonstrates the fact that the assimilation of Jews and Gentiles is as difficult as oil and water. It appears that Doctor Murphy, who has been the Chairman of the board ever since the formation of the company, discovered what he thought to be some very great irregularities in the management of the company, and endeavoured to inaugurate the necessary reforms, but this did not meet with the approval of the Jewish section of the directors (Murphy is a Christian) and consequently they called a meeting for the purpose of unseating the Doctor. Mr. David Harris was voted to the chair, and Mr. Lowenthal preferred the charges against Dr. Murphy. Mr. Lowenthal claimed to have been on friendly terms with Dr. Murphy, who in return shouted "Don't say that, I have never been a friend of yours in my life." Mr. Lowenthal defended the conduct of their manager, and it was resolved that Dr. Murphy discontinue his office as a director, &c. On Dr. Murphy being called upon by the Chairman to address the meeting he gave it to his opponents rather hot. He accused them of being experts in everything but legitimate mining, called them the tribe—the chosen tribe—on which there was a tremendous uproar, and loud cries of "disgraceful," "kick him out," "horse-whip him," &c. Many threats of violence were used towards Dr. Murphy, while amidst the general commotion the Doctor's voice was heard shouting "crucify him." It was some time before order was restored. No words of mine are sufficiently strong to condemn the conduct of every person who took part in the above meeting, and as it was in connection with one of our best dividend paying companies it will do much to injure us in the eyes of our Colonial friends and European investors.

I have never seen so much distress in this place as at the present time. It is a fact that the shares in some companies which are paying 36 per cent. per annum are selling at a discount of 20 per cent. The time has arrived when I can recommend European investors to turn their attention to diamond mining, and if they only exercise an ordinary amount of caution they cannot fail to do well. In the Kimberley Mine all the companies are turning out as I anticipated, the Central taking the lead. The French Company will soon be in a splendid condition, and their dividends will be very high. The Rose Innis are hauling a splendid lot of rich diamond soil. The South East are also hauling a lot of profitable stuff. The British Company are hauling only reef at present, notwithstanding which they will declare their usual quarterly dividend. The Cape, South West, North West, Vulcan, Octahedron, &c. are still idle. The North Block Company are doing very well at present, and ought to pay a good dividend for the current quarter. At Old De Beer's Mine the order of things does not change; the four companies so often referred to continue to earn their usual dividends. It is a great pity to see such fine companies as the Victoria so extravagantly mismanaged. It is generally considered here by competent authorities that this is the worst conducted of any large company on these fields. I hear of some beautiful quality diamonds being found at Jagersfontein, but whether of sufficient value to give dividends I have not heard. I hear nothing of St. Augustine's Mine now. It was reported here at one time that Captain Finlason had formed a company to work it. I should like to see this property developed

under the supervision of a thoroughly competent manager, as I believe it would be a good paying concern. News has just been received here saying that Mapoch punished the Boers more severely than was given in the first account, but the officials are doing all in their power to gloss over the affair. Every person here hopes that Mapoch will invade the Transvaal and conquer it, because Kafir rule is much preferred to the Boers. CORRESPONDENT. Kimberley, Nov. 11.

## MYSORE REEFS GOLD MINING COMPANY.

SIR,—Following up the report of the meeting of the Mysore Reefs Gold Mining Company held at the Cannon-street Hotel on Nov. 30, and which appeared in the *Mining Journal* of Dec. 9, I have to request that you will publish the following certificate of the scrutineers duly appointed to take the poll on Dec. 9:—"We, the scrutineers appointed to take the poll on Mr. Harvey's amendment to Col. Blair's resolution moved on Nov. 30, 1882, hereby certify that 4284 votes were recorded at the said poll in favour of the amendment, and 175 votes against it, and that 922 further votes in favour of Mr. Harvey were disqualified, on the ground of not having been lodged within the time prescribed in the Articles of Association. Dated this 11th December, 1882. (Signed)—Hugh W. Tulloch, Travers James Biant."

JOHN HARVEY.

## RAMBLES IN MANITOBA.

Winnipeg, Winnipeg, Winnipeg, was the cry all through Ontario and Quebec in the latter part of the year 1881 and beginning of 1882. The opening up of the New Pacific Railway, the certain knowledge that the country was a fertile land instead of the barren frozen wilderness described by the Hudson's Bay Company, the advent of innumerable strangers, and the fact that the city of Winnipeg was the entrepot for the whole North-West, gave an impetus to speculation which was truly astonishing. Arriving there about Oct. 25, 1881, the writer found himself in a whirl of excitement. Lots, lots, lots, in Winnipeg, in Brandon, in Rapid City, in Minnesota, wherever the railway was going to run, and the railway was "going to run" wherever any person had a good lot of land that he could lay out in a town. But principally in Winnipeg, where the town of only 2000 in 1871 had increased to 15,000 in 1881, here was a city and likely to increase.

Suddenly all over the city real estate offices sprung up like magic, and the people had an army of real estate brokers, who were active and industrious. Land was sold on a margin, and the next person sold at a higher figure and cleared the difference. One sale I particularly remember. A part of St. John's parish, belonging to the Church of England was sold on Friday for \$51,000 and on Tuesday the same property was sold again for \$104,000. The banks were crowded, the clerks had to work till late in the night; the streets were full of people with their notebooks buying and selling, while at the same time the business of the city was at a high pressure. The Canadian Pacific was pushing on their work and had got to Flat Creek. Such was the condition of affairs in 1881. The boom that struck the city in October, 1881, and raised the value of property, began to subside at the approach of Christmas. Many wanted to come back to Ontario to see their friends, and although the prices maintained their standing, yet the sales were not as frequent.

After the holidays and the beginning of the new year the boom took another start, the carloads of speculators from Ontario and Quebec eagerly bought the lots, and the first carload would sell out to the next carload, and the prices were all the time going up. But the fires and the floods came in the spring, and the boom burst, and the real estate offices melted away as the snow melted from the streets, and Winnipeg had its first "big boom." But legitimate business was on the increase, and all through the summer of 1882 it has been speedily augmenting. The Canadian Pacific Company made a contract with Langdon and Sheppard to build 500 miles west, and they have nearly finished their contract, when finished, will place the end of the track about 15 miles west of the South Saskatchewan. It is a wonderful country, and England in possession of Egypt by means of war, and England in possession of the North-West by means of the victory of science against Nature, has, in the year 1882 added wonderfully to her resources. BOURNONITE. Nov. 28.

## TASMANIA—ITS CLIMATE AND MINERAL WEALTH.

SIR,—Tasmania, otherwise known as the "tight little island," is possessed of many privileges unknown to the inhabitants of most parts of the globe. Its climate is at all times pleasant; and although situated within 24 hours' sail of the Australian coast, unlike Australia is not subject to those trying hot winds so prevalent there during the long summer, but, on the other hand, a warm, pleasant, healthy atmosphere, like our finest summer weather, is what can best be compared to the climate of Tasmania; and although the winter, it must be remembered, is not warm, yet it is not very cold, and is always bracing. With a climate like this the reader will doubtless exclaim, What a healthy place Tasmania must be! And so it is. There the crops, the trees, animal life, and human nature seem to be specially and providentially favoured; and during the spring and summer months in particular it is doubtless a beautiful sight to see the crops and wild plants of the bush trying as it were to outdo one another in their natural beauty. As in Australia, gold, iron, silver, lead, coal, and copper have been found in considerable quantities, but tin is what has made Tasmania what it now is—a wealthy little island. With reference to the gold of Tasmania, it is a peculiar fact that it has all been found within a radius of about seven miles from the coast line, and principally in the immediate vicinity of the Tamar river. However, at the present day Tasmania can be said to possess no great wealth as far as gold mining is concerned, for the fields there are nearly all worked out now, and only one or two claims are paying dividends. Another fact with reference to the gold mines of Tasmania is that the reefs do not run to such a depth as they do in Australia, and consequently one claim after another has had to stop work, either on account of the gold running done in the stone, or the stone running done, and consequently the gold also. All endeavours to find new fields lately have been unavailing, and the general experience of practical prospecting miners is that Tasmanian gold mining is on its last legs. I would not, however, have the reader believe that Tasmania has not profited to a great extent from its gold fields. On the contrary, many are the thousands of pounds which mother earth has disgorged to fill the pockets of those who first visited the Tasmanian gold field; but, as I mentioned above, these days are of the past, and according to practical experience gone never to return. Silver-lead has been found in the western part of the island, and a company, known as the Mount Claude Silver Lead Company, has been formed to work the property; and from present prospects bids fair to add another source of mineral wealth to Tasmania. Iron has also been found there; and on the west bank of the Tamar river stand the works of the Tasmanian Iron Company. But lately these works have been stopped for some reason best known to the proprietors, but not on account of the scarcity of the ore. Coal and copper have also been found in Tasmania, and many other minerals in larger and smaller quantities. But its greatest source of wealth is its tin fields. With reference to these tin fields but little is generally known by the world at large; and although many do know of the existence of tin there, very few are aware that not only are its fields rich and the mineral scattered over a large area of country, but that Tasmania possesses the richest tin mine known at the present time. The writer spent the greater portion of eight months visiting the mines of Tasmania, as well as prospecting in new country for the discovery of fresh mineral wealth, and can testify that nearly all the country along the eastern coast yields when tested a prospect of tin, either in payable quantities or otherwise. But the great drawback in these parts is that a sufficient quantity of water to work the ground is very hard to obtain, and that only at a great outlay. Tin has also been found in the neighbourhood of Ben Lomond (a mountain more in the interior) in very payable quantities. But it is on the west coast that the famous mine above referred to is to be seen, and is worked by the Mount Bischoff Tin Mining Company. The shares in this company have for a long time been worth over 70l., and it pays on an average a monthly dividend of 1l. per share. To describe this valuable property would

simply be to call it a mountain of tin, as it really is, and, according to prospects obtained, likely to continue for many years to come. Its regular yield (although sometimes this is exceeded) is 220 tons of smelted tin per month, as regular as the time comes round; and as the shares are principally held by residents in Tasmania, this mine alone forms an enormous source of wealth to its people, besides being a great boon to the world at large. Every month is bringing to light fresh discoveries of this valuable mineral, and when water is procured and all these rich properties set agoing Tasmania will enjoy a flourishing time; and for the sake of those pioneers who risk their lives by exposure and hardships through the unexplored bush of Tasmania in the attempt to open up this source of mineral wealth, let us hope tin will continue to maintain a good price in the market, and by this means what is a flourishing little island now must become doubly so within the next few years.

G. G. H. S.

## CORPORATION OF SOUTH AUSTRALIA COMPANY.

SIR,—"Scrutiny's" letter on the above company, in relation to the realisation of its prospectus, has no doubt some ground to go upon. He refers us to W. B. Palmer's letter in a late *Journal*, which I have just read. No doubt W. B. Palmer's plan would be good from one point of view, though I admit that they are, as a rule, too highly paid at the outset of the company considering the companies are earning nothing, especially mining companies, for often two years at least; but, again, shareholders are to blame themselves in not finding this grievance out when taking shares. "Scrutiny" most surely knows that there is entailed at the beginning of all companies or concerns a serious responsibility, especially in mining companies, bringing with it more brain work, more expense, more time, energy, and care required to carry it to a successful issue, and notwithstanding all the guarded care and reliable information received or acquired, they may be led into error's paths that besides the personal stake they have other serious expenses may be thrown on them. So that it is really at the beginning that the directors earn all they get, and more; but if some plan was arranged to postpone their payment of fees until after two years' working the company would be better able likely to afford it, and with less grumbling. Coming to the main subject of "Scrutiny's" letter, the directors, I believe, of this company are a body of honest practical gentlemen, both at home and abroad, therefore, in my humble opinion, guaranteeing the concern from any mere speculative enterprise, which if given time to will turn out a good thing, the apparent fact is that the property is too large for one company, and in the developing thereof much time will be required. Certainly the Blinman Mine was to be worked first, and being so large much time has been consumed therewith. My idea is that the other properties should be at once as far as now practical gone into, and find out the good, bad, or indifferent. Not being large not much labour will be required, while yet they would be bringing grist to the mill, and so help in the development of the Blinman in all its requirements to be a paying concern. The great encomium passed on this mine by Mr. Fivesh gives the tonnage per month by "Scrutiny" trial; notice a number of labourers are quoted. With a judicious selection of the various properties and honest speedy work on them, I believe, they would rapidly give immense good to the company. And it seems to me that the shareholders should vigorously attack them. In regard to the year's report cannot some more quicker way be got than getting the same only in April, from January to then is far too long. Dec. 13. W. B.

## THE CAPE COPPER MINING COMPANY.

SIR,—The difficulty in dealing at a moderately close price in these shares is daily on the increase, indeed it is difficult to deal in them at all in lots beyond five or ten shares. I have no doubt but what if the 8l. paid shares were divided into four shares of 2l. each, with the small liability of 10s. attached to them, dealings would be much easier and that they would attract a more numerous class of investors who go in for shares of a small denomination. The dividend and bonus for 1881 having been 6l. per share it follows that on a 2l. share it would be 30s. Such 2l. shares would be worth at least 15l., and at that price they would yield 10 per cent. In fact they might easily run up to 20l., for a property such as the above is by no means dear when bought to yield 7½ or 8 per cent. At the present price of 55l. the yield is 11 per cent. The gain in capital value would be considerable to the holders and dealings greatly facilitated. London, Dec. 14. W. D.

## EXTRACTING GOLD AND SILVER FROM THEIR ORES.

SIR,—I have recently read in the *New York Mining Record* an article copied from your *London Mining Journal* referring to the invention of Mr. L. F. Gowans, of Cheapside, and with reference thereto I should like to make a few observations. Be an amalgamating device ever so effective as an amalgamator it will not suffice in these days of science. With the very best amalgamating device that can be constructed the loss in many mines will be over 50 per cent. unless we have some proper device for taking the sulphurets. After some eight years of toil and study I am able to say that I have a device for each purpose sufficiently perfected to give them important advantages over anything of the kind in use. In evidence of my mining experience I may mention that more than two years since I received a handsome certificate from Mr. W. H. Kinder, of the Gold Run, California, with reference to my grooved rifles in connection with silver plates, which is, perhaps, the cheapest and best known method for taking free or rusty gold. There is no wear of plates, but little space is required, and they can be readily locked. Mr. Kinder (Aug. 19, 1880) stated that he considered them valuable, being superior to anything he had ever tried; that they were convenient to clean up, and would largely increase the yield of gold. Yet when this certificate was given I saw that there was still a serious defect, and I kept my eye on them for two years or more before I found an appropriate remedy; but when found it was very simple and cheap, and will without doubt make the rifles all that is claimed for them. They are well adapted for quartz, drift, or hydraulic mines.

With regard to my improved double-acting concentrator, I claim that it will work a larger quantity of pulp and save a larger percentage of sulphurets than can be effected by double the amount of money expended in any other known device. The sulphurets are neatly separated from quartz, sand, and other refuse by one working. It is the only known practical concentrator that will procure sulphurets, concentrations, &c., from pulp where it is discharged at long intervals in large quantities from pans, or that will procure black sand, rusty gold, &c., as they flow from hydraulic mines. With a simple device embodying the fundamental principle on which this concentrator rests, that a mechanic and myself constructed in three days, I took from tailings at Bodie, California, in two days over \$100. The catch was principally a concentration, having as a basis sulphide of silver, containing a large percentage of gold and assaying over \$14,000 per ton. I have since immensely improved my devices, grooved rifles and concentrator, and have taken out in all six patents, the first one in 1874.

My sixth patent covers a point that will give me an important advantage over anything that any intellect on earth can get up. To show its efficiency I will state that the two first days I took at Bodie only some \$13. I then introduced said little device, which increased my catch in the next two days to over \$100, as already stated. This device is a simple arrangement for procuring a high concentration without the aid of machinery. Thus, sulphurets ores usually carry about 3 per cent. of sulphurets. All the concentrators now in use work the entire body of said dead mass in order to take the 3 per cent. Now I, instead of doing this, manage by means of the device aforesaid (without machinery) to throw into the waste from three-fourths to nine-tenths of said valueless substances, and then separate the sulphurets from the residue by machinery. I can, if desirable, carry this method of concentration (without machinery) to a very great extent, and thus procure concentrations from hydraulic mines. We will say that it is desirable to plant in a large hydraulic mine where 10,000 cubic yards of dirt are removed daily. These 10,000 cubic yards are first concentrated to about 50 tons, which will contain the more valuable substances, such as quicksilver, fine and rusty



gold, black sand, &c., that have been lost from the works above. These 50 tons I can now concentrate down to 1 ton, 500 lbs., or even 100 lbs., if desirable, and these 100 lbs., or whatever the quantity may be, will be found to contain the main body of the free and rusty gold, quicksilver, black sand, &c., that have been lost from the works above.

The black sand in many mines is valuable, but in order to extract the gold the sand must be caught and treated chemically, the gold being intermingled therewith after the manner of quartz. Many millions of dollars have been lost in California and elsewhere for lack of an appropriate device, such as I can construct, for taking black sand. Is there any other known inventor proposing to procure concentrations from hydraulic mines and other unwieldy bodies of tailings? There is not, and after being as modest as I well can, I will assert, without fear of successful contradiction, that there is not a living soul on the face of the whole earth, who now breathes the breath of life, that can effect all of said purposes as practically and cheaply as I can, provided my patents be properly respected.

Washington, Nov. 29.

BRYAN TYSON.

#### MINERAL RESOURCES OF IRELAND

SIR,—If Capt. W. H. Rowe, of Great Laxey, had examined the counties of Cork and Kerry he would have found Mr. Thomas Tonkin's description of them as accurate as his description of Antrim and Down.—*Cork, Dec. 12.* F. G. S.

#### SHROPSHIRE LEAD MINES DISTRICT.

SIR,—As a rule we have hard and expensive ground in the lead mines here, with the lodes very compact and well defined. The introduction and use of the rock-drills and boring machinery, as a whole, is a great advantage to us. Capt. Arthur Waters has them at work at Roman Gravel, Great Roman Gravel, and Pennerley Mines, and Capt. H. Dennis has them at the Snailbeach Mines, and they are making provision at some of the above-named mines to use more drills. The heavier machines stand their work best in the hardest ground. At Snailbeach they are driving a cross-cut in hard ground at the rate of 2½ fathoms per week with one machine. This is more than twice the rate of a good pair of six men, and in a stop at that mine I hear that one machine is doing the work of 18 men. All honour to the above-named gentlemen and their directors for this important advance in our local mining. MINER.

#### EAST DEVON CONSOLS COPPER.

SIR,—Being a shareholder in the above mine I am naturally anxious to learn what is being done at it, but can get no information. Every week I look over the Journal very carefully to see if there is any report published, but am always disappointed. Why are weekly or monthly reports not made like almost every other mine? Perhaps some of your readers who are also interested will be good enough to reply to this letter, and throw some welcome light on the subject? When is it likely to become a dividend-paying mine?—*Dundee, Dec. 13.* F. C.

#### MULBERRY TIN WORKS, AND NEW TERRAS TIN MINING COMPANY.

SIR,—I was struck on reading reports and prospectuses of Mulberry Tin Works with the similarity of its principal features with that of New Terras Company. Both companies have what may be termed a quarry of tinstone, and although in the reports the Mulberry Company's stone is stated to average only 8 lbs. of tin to the ton of stuff, they have just paid the handsome dividend of 10 per cent. New Terras Company's reports quote the lowest average of 5½ in stanniferous elvan at ¼ cwt. to the ton of stuff, the central portion being worth 1 cwt. to the ton, besides which they have a lode opened up which the agent, Capt. Pryor and Mr. Ashwell, C.E., of Truro, stated at the first meeting held last month to be worth 2 to 3 cwt. of tin to the ton of stuff, for central 7 ft. of lode, and to average fully 1 cwt. to the ton for a width of 24 ft. As a shareholder in New Terras I am pleased to find 8 lbs. of tin to the ton will pay expenses and a dividend of 10 per cent., and congratulate my fellow shareholders on having a property, which from its higher yield of tin must reasonably be expected to do proportionately better, although if our managers pay us 10 per cent. for the first year I think it would satisfy everyone. Both companies appear to have special elements of success not usually met with in mining ventures.—*Manchester, Dec. 13.* NEW TERRAS.

#### COOK'S KITCHEN—A COMPARISON DRAWN.

SIR,—I notice in the different papers very strong attempts being made to puff up different mines, especially Cook's Kitchen. Speculators may fairly question the motives prompting such paragraphs, and which oftentimes lead the unwary into heavy losses, as, unfortunately, they have no means of verifying such statements until it is too late. In the mine above referred to it is a well known fact in the Share Market that large numbers of shares have been bought up from time to time by speculators, and hung up at different banks, probably with the intention of being planted on the public at over 40¢ per share. But such a scheme seems to have utterly failed, the public for once fighting shy of the concern, in spite of the strenuous efforts put forth by her sanguine agent and others. Probably those bankers who have so rashly advanced the money on the shares may now be troubling the speculators to pay down in price as cover, and it may be necessary to get rid of a few to "span the gander."

Let us look at the position of the mine three years ago. By comparing the report of the last meeting held in 1879 with the results of the last meeting held this year, we shall then see clearly the progress the mine has made during that period, and in which space of time such very valuable discoveries have been made, and the shares run up to such an enormous figure. The published reports and statements to the shareholders show as follows:—

Oct. 16, 1879.	Nov. 9, 1882.
The returns of tin for the 16 weeks were 61 tons 14 cwt., and realising 24787. 18s. 9d.	The returns of tin for the 16 weeks were 57 tons 7 cwt., and realising 35012. 12s. 9d.
Loss on same period, 12151. 12s. 5d.	Loss on same period, 14961. 10s. 9d.
The call of 10s. per share made.	No call made.
The total liabilities as per balance-sheet were 79561. 3s. 7d.	The total liabilities as per balance-sheet were 99291. 10s.
Tin credited unsold amounted to 14621. 10s.	Tin credited unsold increased to 21607. 10s.
Bills receivable, 4651. 15s. 8d.	Bills receivable, increased, 13837. 7s. 4d.
Price of shares then, 32.	Price of shares, 40¢.
Average price of tin, 40¢. per ton.	Average price of tin, 60¢. per ton.

It will, therefore, be readily seen that while the price of black tin has improved from 40¢ per ton to 60¢ per ton, and the price of shares from 32 to 40¢, the returns of tin have actually decreased, whilst the debt or liabilities have increased close on 20000¢. At 40¢ per ton the mine was worked at a loss of 12151. 12s. 5d., and now with tin at 60¢ per ton the loss has increased to 14961. 10s. 9d. The financial position of the mine has also made a further retrograde movement, as it will be seen. The total amount credited for tin unsold and for bills receivable at the last meeting held in 1879 amount to 19487. 6s. 8d., now 35437. 7s. 4d., or showing an increase in fictitious credits of 15951. 1s. 8d. Surely such a comparison can but give utterance to the warning note—

BEWARE.

THE MACKEAN ROCK-DRILL.—An interesting pamphlet giving the correspondence which has appeared in the *Mining Journal*, Engineer, &c., during the past 10 years with reference to this drill, has just been issued by Messrs. MacKean and Co., of Place Vendôme, Paris, and Delahay-street, Westminster, and will afford instructive information both to mine managers and to directors and shareholders of mining companies. Probably no drill known in the English market has been so long and severely tested as the MacKean, the work done with them in the St. Gothard tunnel alone being as much as many others have done altogether. It was stated when the St. Gothard tunnel was bored that six MacKean rock-drills were capable of drilling as many as 24 holes 4 ft. deep in a face about 6 ft. 6 in. square, and that the holes having been charged with dynamite, and properly tamped about 2½ cubic metres had generally been dislodged. The progress of the boring had for some time been at the

rate of 20 feet to 24.7 feet per day. Some interesting figures are given showing the results of experiments made in hard granite with the MacKean rock-drill at Geneva, for Mr. Louis Favre, the contractor for the St. Gothard tunnel, which permit of an opinion being formed as to the relative merits of the cross-tool, +, and the flat tool, —, and practically the simpler tool appears to do equally good work. With a pressure of five atmospheres the flat tool did 25 centim. (9½ in.) in 59 seconds; the cross-tool 34½ centim. (13½ in.) in 90 seconds. For the work to have been equal the cross-tool ought to have done 37½ centim. in the 90 seconds. With a pressure of 4½ atmospheres the cross-tool did 35 centim. in two minutes, the flat tool 40 centim. in 2½ minutes. These results are practically equal, the advantage being but a fraction of a centimetre in favour of the flat tool. The diameter was 43 millim. or 1½ in. in each case. The pamphlet will well repay attentive study by all users or intending users of rock drills.

#### REPORT FROM CORNWALL.

Dec. 14.—It is useless to attempt to arouse an interest in general mining matters during the short period that remains of 1882. Little will be done beyond the absolutely needful, and we must wait with what patience we may for the good things the New Year may have in store. A few wise folk have taken advantage of the present condition of affairs to "spread" themselves somewhat in the way of investment; but they have not been numerous enough to produce any marked effects, nor is their example likely to be largely followed, though it certainly might be with no little advantage. Probably there have been too many unremunerative investments in mining of late to encourage any but the more experienced and accustomed to venture.

The event of the week has, of course, been the highly successful Exhibition of the Mining Institute at Camborne, and in connection therewith the laying of the foundation stone of the Science and Art Schools in that town. Camborne has then been only a few months behind Redruth. It was a capital idea to link the Exhibition and the ceremony together, and the pleasant duty of formal inauguration could not have been committed into better hands than those of Mr. Husband, the excellent President of the Mining Institute. When both Redruth and Camborne are fully supplied, we may expect to see a good deal of honourable rivalry between the students of the two centres. There has always been a great deal of strong local feeling in the county, which has not, however, always been manifested in such satisfactory ways.

There is certainly nothing to be surprised at in the fact that the tin standards have been dropped once more. The great and repeated failures in the tin-plate trade made that inevitable; and though the year is now very near its close we are not at all sure that its lowest depth has as yet been sounded. All this, however, in no wise diminishes our confidence in the future, though it does supply very strong reasons for extra care in the present.

#### EXHIBITION OF THE CORNISH MINING INSTITUTE.

The Cornish Mining Institute has this week held a most successful Exhibition at the Assembly Rooms, Camborne. As already hinted was likely to be the case, the entries were far larger than on any previous occasion, and the quality of the display was fully equal to its extent. This is a very gratifying result for all concerned, and especially for the President (Mr. W. Husband, C.E.) and the secretary (Mr. Rich). The latter gentleman only entered upon office last June in succession to Mr. Provis, and it speaks volumes for his energy and ability that he has been able to conduct the Exhibition to such a successful issue. Several firms new to the county put in an appearance; there was a full proportion of novelties, and a still larger share of improvements. The Exhibition, therefore, was of much more than passing moment, and is likely, as its predecessors, to leave a considerable legacy of good behind it.

Of course no exhibition of a mechanical and scientific character can be regarded as complete now a-day without a display of the electric light, and this needful adjunct was provided by the liberality of Messrs. Walker and Oliver, of Nottingham and Cardiff. The council found the power, in the shape of one of Hornsby's portable engines, and the firm provided a Gramme dynamo, and fitted up about 40 of Swan's incandescent lamps in the large room and various parts of the building, taking advantage also of the occasion to illustrate the power and capabilities of various other forms of incandescent lamps, including the Swan five candle, the Maxim, Crook, Gatehouse, and Northomb. This feature, however, prominent as it was, was really subsidiary so far as Messrs. Walker and Oliver were concerned, to the admirable arrangements made by them for illustrating their system of electric signalling, and particularly their manifold adaptations of electrical apparatus to mining purposes, the main features of which are simplicity, strength, and continuity and certainty of action. Their Electric Engine Plane Signal, in use in a number of collieries, is worked by two naked wires, and simply pressing these together at any point on an incline or in a shaft, causes the bell in the engine-house to ring. The signal is thus always at hand. In the Electric Shaft Signal there are generally three bells, one in the engine-house, one on the bank, and a third at the bottom of the shaft, where there is a special form of ringing key, made very strong and dust proof. To and fro signals are thus arranged. The Tapper Bell Signal for use on surface inclines has a single wire with a tapper bell and battery at each end. By the key attached to each bell any number of signals may be given in rapid succession. This is a great improvement on the old form of wire pull signal. The batteries require attention on the average only once in 12 months. The firm have introduced some new forms of the Leclanché battery, which are found to do their work admirably. These they exhibited, with a large quantity of miscellaneous electrical apparatus.

Another illustration of the electric light was given by Messrs. Crossley of Manchester, who sent them very compact and handy arrangement for driving a dynamo by one of their Otto engines, the two being fixed upon the same bed. The light thus generated was turned to capital account in a microscopic room.

Yet a further series of electrical apparatus was exhibited by Mr. A. K. Barnett, of Penzance, who had amongst other matters one of the little Griscam motors for driving a sewing machine. To him also the Institute was indebted for a notable display of the choice models of crystals, collections of elementary bodies, and imitations of precious stones, produced by Dr. Theodore Schuchardt, of Gorlitz.

Messrs. John Warner and Sons, Cripplegate, London, made the finest display ever seen in the West of England of various forms of pumps and other hydraulic machinery. Hardly any kind of pump from the widest ranges of adaptation and purpose but was represented in their collection, which was set out, moreover, to the very best advantage. There were single and double action miners' hand portable pumps, colliery force-pumps, the Essex direct-action plunger steam-pump, single plunger steam ram-pumps, vertical steam ram-pumps, deep well waterworks pumps, treble ram pumps and pumping engines, rotary motion hand-power lift and force pumps, and other machinery of allied character. Messrs. Warner made, in fact, quite an exhibition in themselves.

Capt. Teague, jun., was represented by a set of his latest inventions. His air economiser is an effective arrangement by which apparatus driven by compressed air can be set to work without waiting for the reservoir to fill, and by which the air is stored in the reservoir when it is not wanted to drive the machinery instead of being allowed to blow off to waste. Capt. Teague's slide inlet valve for air compressors, &c., was fully explained in connection with the late Polytechnic Exhibition. He has now devised a balance outlet valve to secure greater economy in the production of compressed air, which is also capable of useful adaptation in sundry other directions, notably to pumping-engines. His attention was called to the fact that there was a great loss of power in compressing air, in consequence of the piston having to compress up to a higher pressure than the pressure in the reservoir—up to 70 lbs., for example, to open the valve against 60 in the reservoir. By placing an indicator on the pumps at Tincroft Capt. Teague satisfied himself that precisely the same waste of power was taking there, and that, in fact, much of the alleged falling off in the duty of the Cornish pumping-engines arises from this cause. At Tincroft the indicator would register 110 lbs., while the pressure was 70. The deeper the mine the greater

the loss. Capt. Teague's new valve is simply a valve with a spill large enough to counteract this inequality, which runs out into the atmosphere, and the whole arrangement seems alike ingenious and complete.

Capt. Bishop, of East Pool, sent models of the new form of skip on show at the Polytechnic, and his double-decked cage introduced by him at East Pool, where it is used for lowering and raising the miners, and which is now at work in several other mines in the county—Wheal Sisters, South Wheal Frances, Wheal Bassett, Gunnislake (Clitters), &c., with the most complete success.

Capt. White, Wheal Pevor, exhibited the model of the drawing arrangements in use in that mine, also shown at the Polytechnic.

Messrs. Holman Bros., Camborne, had a capital representation, including the Cornish rock-drill, winches, ratchet and screw jacks, pulley blocks, and some new arrangements, including an instantaneous grip vice, worked by a simple lever, and absolutely instantaneous and certain in its action; a handy form of bench "bull" for holding a brace; and a new screw machine for screwing pipes, so much more largely used in mining now than they used to be. The latter are fitted to a modified self-centring chuck, and there is a device also for cutting a pipe in two with speed and accuracy. The machine will deal with any pipe, from 3 in. downwards.

The other rock-drills shown in addition to the Cornish were the Barrow, by Messrs. Loam and Son, and the Stephens, by the inventor, after whom it is named.

Messrs. Tyacke, Camborne, showed a telescopic windbore, the bottom piece of which is made to slide accurately in the upper joints by means of a collar of indiarubber. The firm likewise had a series of examples of rubber goods from the well-known works at Silvertown. The Alpha gas apparatus was exhibited in action, and with thorough success.

Ropes of various kinds formed an interesting and attractive feature, several firms being represented. Messrs. Wright, of Birmingham, had a very large case well filled with a series of admirable examples alike in hemp and wire. Messrs. Stephens and Son, Falmouth, were also prominent, a special feature being their new and highly flexible wire-rope.

Messrs. Newall, Gateshead, forwarded cases of iron ropes for rigging, with the various fittings and appliances, of their ropes for general mining purposes, and samples of their colliery guide ropes, which are made of ½ in. wire, and hang perpendicularly in the shaft as guides to the cages.

Messrs. Cradock, Wakefield, were represented by a series of samples of Lang's patent wire-ropes, of which they are the sole manufacturers. The peculiarity here is that instead of the wires being laid in one direction and the strands in the other, both wires and strands run to the right. This gives a greater wearing face, and minimises the risk of the wires breaking at the crown of the strands. An example of rope was shown reduced by wear from ½ in. to ¼ in. Not a wire had given way, and the rope had worn both smooth and solid.

One of the greatest novelties in the Exhibition, and which attracted a large amount of attention, was the Willesden waterproof paper roofing and canvas. The Japanese have the credit of turning paper to a large variety of uses, but the Willesden Company not only make durable roofs which stand any weather of light cardboard, but water pipes and tanks, and by the application of the same principle render canvas and paper alike rot, rust, and water proof. The severest tests have been withstood with the most entire success, and the roofing has sustained the tramping of thousands of people daily for months when laid down after the fashion of kamptulicon. The material is excellent for lining damp walls, and as used for pipes will carry hot liquids as well as cold. A special merit, too, is that in every form it is absolutely inodorous. As compared with metallic roofing it is but from a seventh to a tenth of the weight, and yet is perfectly strong, and is laid direct on the rafters or battens without roofing boards.

The patent solidified oil of Messrs. Fleming and Co., Edinburgh, with the lubricators specially adapted to its use, made a capital show. It has been found most economical and effective, never clogging or corroding, and lasting four times as long as tallow.

Messrs. Anderson, Abbot, and Anderson, London and Swansea, were represented by a notable assortment of their manufactures in india-rubber, of which they exhibited also pure native samples. They made a special feature of thin belting in rubber, gutta percha, and leather; and particular mention is also claimed by their rubber valves and buffers. Though their exhibits were of course mainly of the mechanical class, they included several illustrations of their domestic appliances.

Sonnenthal's improved "Simplex" tube expander was shown by Messrs. Selig, Sonenthal, and Co., London. The rollers are taper, revolving on a taper mandril held in position by connecting links attached to their ends, and as four, five, or six rollers may be used as required, the tool is capable of adapting itself to a large variety of tubes, and can be used with tubes of unequal shape.

Fox's corrugated furnace flues were exhibited by Messrs. Hopkinson, Huddersfield, who also sent the Fox and Hopkinson Lancashire boiler, in model. The corrugated flues have been proved to be many times stronger than plain tubes of the same diameter and thickness of metal; they give an increased and more effective heating surface; provide by their flexibility for the unequal strain between shell and flue; and have proved by the longitudinal compressibility that takes place uniformly over every corrugation to be self cleansing. The boiler is so devised as to turn these tubes to the most practical account.

Two forms of hydraulic power apparatus were shown—the Vortex turbine in model by Messrs. Gilbert, Gilkes, and Co., Kendal, and the Bailey water-motor in action by Mr. Henderson, Truro.

Pryor's patent compensating piston packing was sent by Messrs. Sara and Burgess, Penryn. It is a spring packing with vertical action, which can be put in the same depth of groove as a common ring. The bores come very close together, which give great resisting strength, and it can be used in solid heads.

Messrs. Dewrance and Co., London, among their steam fittings had several examples of their asbestos-packed cocks, in which the plug is made to work upon an elastic bearing of asbestos packing instead of the unyielding metal surface of the shell. They likewise sent samples of Babbitt's anti-friction metal, and bearings showing its wear.

From the Sandycroft Engine Company, Chester, came a beautifully made model of Patterson's Elephant ore stamps, which are at work at one mine in the county, and bearing an excellent name.

Messrs. Whitehouse and Co. forwarded samples of chains and illustrative examples of the tensile perfection of the iron used in making them, of a thoroughly satisfactory character.

Cases of fuses were shown by Messrs. Bickford, Smith, and Co., Camborne, and by the British and Foreign Safety Fuse Company, Redruth. Messrs. Bickford Smith have added to their other ingenious devices a new arrangement for simultaneous blasting—a line of their instantaneous fuse is connected by T-shaped attachments, with offsets of the like fuse leading to each hole in the series. This has been found thoroughly effective.

Messrs. Appleby and Co., Chesterfield, sent a couple of their chain pumps; and Messrs. Norris and Co., of Shadwell, some excellent samples of leather.

Of steel goods of various makers there was, as usual, a capital and very varied assortment. Messrs. Hansell and Co., of Sheffield, had a large display of articles in cast steel—all cast and turned without any forging. Their wheels claimed special attention, especially the simple plan by which, by the aid of a boss and a corresponding hollow, axles and wheels are fixed firmly together; and the arrangement by which greater strength is given to tram-wheels by the introduction of two sets of arms or spokes curved in opposite directions, while they are also made lighter.

Messrs. Spencer and Sons, Newcastle-on-Tyne, were chiefly represented by springs of various kinds, while they sent some very interesting cases of examples of fractured steel, &c., showing the grain.

A large collection of steel goods of the finest quality came from Messrs. Hadfield, of Sheffield; the Landore Company were represented among other matters by stamp-heads; and Messrs. Nettlefold, Birmingham, sent a case of nails and screws, and examples of ratchets.

For several years Mr. E. Borlase, Redruth, the inventor of the



round buddle, has directed his attention to the waste clays and other plastic materials of the county, and has succeeded in producing some very good results. Of late he has been experimenting chiefly upon mine sluices, and his stand at the Exhibition fully proved that this unpromising material can be turned to very satisfactory account, whether for articles of use or of ornament. This year there was a marked advance alike in the colour produced, in the texture and susceptibility of finish of the articles, and in their adaptation to exterior ornament. Such perseverance as Mr. Borlase has shown cannot fail to be rewarded.

The St. Day Fire-Brick and China-Clay Company illustrated their manufactures in fire and building bricks and tiles by a neatly arranged stand, prominent upon which were samples of their speciality in white-pressed facing bricks.

Messrs. Thomas, Exeter, forwarded samples of candles, some specially made for mining use.

The Anglo-American Tin Stamping Company, Stourport, sent samples of enamelled and otherwise ornamented tin ware.

The display of mining and philosophical instruments was small, but good. Messrs. Watson, Pall Mall, among other matters, had a very choice case of instruments, and an oxyhydrogen microscope. Messrs. Davis and Son, Derby, sent anemometers, &c. Mr. Cochrane, Durham, a new dial.

Mr. E. T. Newton, Camborne, made a prominent display. He had his new pumping machine indicator, modelled at the Polytechnic; new forms of transit dials, one with an illuminating apparatus for underground use; another, very small and compact, for the use of travellers; and a third dial, which dispenses altogether with the quadrants, the sights being placed in a broad tube on which the compass stands.

The awards made are as follows:—

*Silver Medals*—Capt. W. Teague, jun., Warner and Sons, Walker and Olliver.

*Bronze Medals*—Capt. Bishop, Capt. White, Henderson and Son, Stephens, Hansell and Co., Muller, Hadfield, Wright, Anderson, Newton, Dewrance, British and Foreign Fuse Company, Hopkinson and Co., Patterson, Watson, Willesden Company, Fleming.

*Highly Commended*—E. W. Newton, Siemens Steel Company, Cradock, Morgan Crucible Company, Whitehouse, Gilkes, Thomas, Sara, and Burgess, Steam Boiler Company, Davis, Tyacks, Anglo-American Company, Spencer, E. Borlase, St. Day Brick Company, W. Cochrane.

*Commended*—Appleby, Norris, Nettlefold, Hancome.

#### TRADE OF THE TYNE AND WEAR.

Dec. 13.—The weather in the North Sea has been terrific during the past week, and the trade of the district has been much retarded in consequence. The sailing of vessels has been entirely prevented for some days, and many of the steam coal collieries have been stopped. Formerly considerable stocks of this coal were made in the winter, but this is not done at present, coals being only worked for shipment. At Ashington and the collieries north of the Wansbeck work has gone on regularly, but in the Tyne and Blyth district little work has been done. Good orders are, however, in hand, and as the weather has now moderated work is resumed. Contracts for next year are still in abeyance, but there is an excellent demand for small coal at advanced rates. Durham gas and other coal is in good request, and most of the works are taxed to the utmost to supply the demand made upon them. Many of the colliery lines have been closed by the heavy fall of snow, and stocks are got to some extent in consequence. On Thursday last the owners of the Walbottle collieries entertained a number of sinkers and other workmen to supper on account of the successful winning of the engine seam at the new shaft they have lately sunk. This coal is of excellent quality, and it has been long known in the London and home markets. There is also a band of excellent fire-clay on the same, which is converted into fire-bricks and other fire-clay goods. The coke trade continues to improve, and the exports show a satisfactory increase. Last month the total export from the Tyne was 19,475 tons, an increase of 2000 tons on the exports of last month. The Sunderland coke shipments were 2106 tons, Hartlepool 1486 tons, and Middlesbrough 3139 tons. Bilbao, Carthagena, and Ganachu are the chief points to which the coke is sent from those ports.

As we have noticed lately, there is a considerable amount of uneasiness amongst the miners in this district. There appears to be a vague feeling amongst them to effect many changes, not only with respect to increased wages, but a wish to effect changes in the mode of working, &c. With respect to the wage question, the colliery owners in both these counties have lately acted in a considerate and conciliatory way that we hold to be commendable, while the men or a considerable portion of them appear to be a little exacting. The Northumberland miners appear to be inclined to discard the sliding-scale, but those men have been remarkable hitherto for caution and discretion, and they have good advisers in Mr. Burt, M.P., and others, and it is to be hoped that they will act in accordance with the advice given by those men. In Durham the men's requests as sent in for the masters' consideration are 17 in number some of them are no doubt reasonable, and some are not of great importance, but the most important one is that the pits shall not be allowed to draw coals more than 10 hours per day. At present many of the large collieries, Monkwearmouth, Ryhope, Silkworth, and many others draw coals 20 hours per day, and if coals were only drawn 10 hours per day the output would be most seriously reduced, and consequently the cost of working would be increased to an enormous extent. This request it is clear cannot possibly be complied with by the coalmasters. Now that the year is drawing to a close the amount of work done during the year is likely to be summed up. When this is done we believe it will be found that the output of coal and the make of coke in Durham will be in excess of last year, and above that of any previous year. In Northumberland the output of coal will we believe not exceed that of last year to any great extent. The make of pig and finished iron will no doubt far exceed that of any previous year. The number of iron ships built on these rivers will there is no doubt far exceed the number turned out in any previous year, and consequently, the number of marine engines and boilers will also be largely in advance of previous years, as the great bulk of the engines and boilers required for ships built here are constructed by local firms.

**MIDDLESBOROUGH SALT DEPOSITS.**—The working of these remarkable and valuable deposits will there is no doubt add materially to the mineral wealth of this great district. These salt beds lie at a depth of 1000 ft. below Middlesbrough, and the thickness of the bed is over 100 ft. Messrs. Bell Brothers are pumping more regularly from the borehole they put down, and they are now making about 350 tons of salt weekly. They have a large royalty of about 2000 acres in extent, and other boreholes are in progress; it is probable that they will make 1000 tons of salt per week before the end of next year. They also contemplate putting down plant for chemical works on this site. Messrs. Boicow and Vaughan are also putting down boreholes on their property, with the intention of pumping the brine and manufacturing salt.

The electric light has now been introduced with marked success at several of the large ironworks, &c., here. It has been in use some time in the fitting-shops at Messrs. Palmer's works, Jarrow; Messrs. Leslie and Co.'s shipbuilding works, Hebburn, and others. It is most admirably adapted for lighting these works. When night-work is carried on as at Jarrow the men can work quite as well at the most intricate operations with this light as in daylight; the light is not only steady and strong, but soft and extremely agreeable. Preparations are now making to introduce the light at some of the large collieries to light the surface works and also the underground works near the shaft, and it is admirably adapted for this purpose. These works will not only be carried out more safely but expeditiously by this light. It is certainly suitable for all large works, railway stations, &c. Little progress has yet been made in street lighting or in lighting private houses by this means, but some of the large warehouses in Newcastle have been lighted by the electric light. Whether this light will ever be adapted for use in fiery mines remains to be seen (that is, in the remote workings); but some at-

tempts have already been made to effect this, and the premium of 500*l.* offered by Mr. Ellis Lever, of Manchester, will stimulate scientific men and engineers to attempt a solution of all the difficulties presented.

The pig-iron trade continues exceedingly dull. There is, it appears, some hope that the American tariff will be revised, which may improve the demand for iron and steel from that great country. At present both pig and manufactured iron is very weak. Stocks, however, are not large, and are not likely to be increased. Some of the makers have reduced their rates, and are selling quite as low as the merchants. The plate trade is dull, and prices are lower (6*l.* 10*s.*) There is, however, plenty of shipbuilding in progress, and if stocks get low the value of plates must improve. Messrs. Connal's stock is 100,784 tons—a reduction of 77 tons on the week.

**NORTH OF ENGLAND INSTITUTE OF MINING AND MECHANICAL ENGINEERS.**—At the meeting of the members of this Institute on Saturday—the President, Mr. G. B. Forster in the chair—a paper was read by Mr. C. Huntry "On the Feeding and Management of Colliery Horses." The writer has had much experience as a veterinary surgeon in the treatment of pit horses, and he is, therefore, well qualified to write a practical and useful paper on the subject, and this he has certainly produced. The main features treated in the paper are the selection and treating of the most useful and economical food for horses. The writer gives an analysis of the different qualities of food usually given, and shows how a judicious mixture can be made which will produce the most valuable food. Maize is a most valuable article of food, and the cutting and bruising of hay is advocated. The writer quoted figures showing that at the principal collieries where his method of feeding was carried out there was a saving of 41,000*l.* odd in the year 1881. The Corporation of Newcastle, by the same method saved 1252*l.* in 1881. In the course of the discussion which followed the paper, Mr. Huntry condemned the use of condiments and spices, and the cooking or boiling of food for horses. His views on these points will be dissented from by many experienced persons, as it is held that a judicious use of condiments and a portion of boiled food is very useful for underground horses under certain circumstances.

A fire has (Wednesday) broken out at the Seghill Collieries of an extraordinary character in this district. It appears that for some time the workmen on the main seam have felt a strong stench or smell of fire; but it has only been ascertained within the past few days that a fire of an extensive character existed in the old workings in this seam. The Seghill Colliery is one of the oldest works in the Hartley steam coal field. The shafts were sunk in the year 1822 to 1826, and the working of this seam was commenced soon after the latter date. It was the custom in those days to leave all the small coals got in holing or curving the seam underground, and it now appears that spontaneous combustion has taken place, and those small coals are burning, and the shale above the seam has also been ignited, and has been burnt for a considerable height above the seam. Great exertions are now being made to extinguish the fire by pouring on water, and also by cutting out the debris from the parts where the fire has been extinguished. It is expected that the fire will be subdued, and when that is accomplished the district where it occurred will be walled off by means of bricks and cement.

Fires underground from spontaneous combustion have been very rare in this district, but one occurred many years ago near Benwell, two miles west of Newcastle, and this caused the destruction of a large area of whole coal. The Seghill Colliery is situated eight miles north-east of Newcastle-upon-Tyne.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Dec. 14.—The coal trade—especially upon Cannock Chase—is being much interfered with this week by the severity of the weather. Canals are frozen in several directions, and supplies have to be sent wholly by cart or rail. Even here again a difficulty arises by some of the ironworks sidings being blocked by the snow. Should the frost and snow continue for another week some of the mills and forges will have to cease operations for want of supplies. Meanwhile fuel prices are slightly stiffer. Pigs are quiet at 67*s.* 6*d.* for best natives, and 42*s.* 6*d.* to 40*s.* for common native sorts; 47*s.* 6*d.* to 50*s.* for Derbyshires; and 65*s.* to 67*s.* 6*d.* for hematites. New orders for manufactured iron are scarce. Sheets are:—Doubles, 9*l.*, and lattens 10*l.* upwards. Bars, 6*l.* 7*s.* 6*d.* to 8*l.*

The colliers are not easily satisfied. Not content with the advance in wages which they lately received, and undaunted by the unfavourable reply which the Chairman of the Coalmasters' Association gave to their request that a further rise might be conceded them on the 1st inst., their council has now instructed the secretary to apply to Mr. Fisher-Smith for a rise of 4*d.* per "stint" in the Thick coal seams, and 2*d.* per "stint" in the Thin coal seams, with the opening of next year. At the moment the weather strengthens the men's hands, but it cannot be said that the ultimate prospects are in favour of the demand being conceded.

As 'Change closed in Birmingham this afternoon it became known that Mr. Fisher-Smith had consulted the leading coalmasters touching the colliers demand for a rise in wages on Jan. 1, and that it had been decided to refuse the demand.

With the view of carrying out the scheme which the South Staffordshire Mines Drainage Commissioners inaugurated some few years ago for draining the Bromley Pound, in the Kingswinford district, which was summarily stopped by dissatisfaction among the local mineowners, Mr. John Raybould, a large colliery proprietor in the Kingswinford district, has recently erected costly pumping machinery, and is now getting it into working order. For upwards of a dozen years valuable seams of Thick coal in Bromley Pound have been cut off from access by the water, but when pumping operations commence a large area of coal will, it is believed, be again made accessible.

At the North Staffordshire Mining Institute meeting, held at Stoke on Monday, the committee appointed to attend the blasting experiments at the Leycester Colliery, by Mr. James Macnab, of London, with his patent water cartridge, on Nov. 16, presented their report. They stated that the first experiment was in a hole 2 in. in diameter and 4 ft. deep. The charge was 10½ ozs. of ordinary blasting powder, or 8 in. cartridge, the water cartridge being 18 in. long, and fired in the ordinary way. A little clay was placed between the powder and the water cartridge, also a little clay between the water cartridge and the sand tamping. The result was about the same as in ordinary blasting—a great many small sparks were seen. Other trials took place alike below and above ground, but all with the same result—that the presence of flame was fully demonstrated. The experiments were considered to have proved that the water cartridge was not a valuable accession in blasting when powder was used.

#### TRADE IN SOUTH WALES.

Dec. 14.—The shipments for steam coal for the 11 months ending November at the leading South Wales ports was:—Cardiff, 5,333,099 tons; Newport, 1,254,726; Swansea, 962,520; Llanelli, 168,697. Last month the shipments were:—Cardiff, 408,244 tons foreign and 82,033 coastwise; Newport, 122,000 foreign and 71,002 coastwise; Swansea, 65,720 foreign and 54,813 coastwise; Llanelli, 820 foreign and 5828 coastwise. Last week Cardiff sent away 110,723 tons foreign and 19,173 coastwise; Newport, 27,181 foreign and 14,609 coastwise; Swansea, 10,334 foreign and 11,396 coastwise. Prices may be quoted at from 9*s.* 3*d.* to 11*s.* 6*d.* per ton. Iron has been shipped at Newport in the 11 months ending November to the extent of 167,716 tons; Cardiff, 120,958 tons; Swansea only 6021 tons. It may be interesting to notice here that of the total production of iron in the world in 1881, Great Britain produced 8,377,364 tons, or 294 per cent., which shows that the many lugubrious articles which have appeared in various journals about the trade leaving the country have no foundation in fact. Last week Cardiff shipped 5728 tons, and Newport 1585 tons. Iron ore has been received at Newport during the week to the amount of 8488 tons from Bilbao and 3550 from other places; Cardiff received 3543 tons from Bilbao, and 103 from other places. The price remains at from 15*s.* 3*d.* to 15*s.* 6*d.* per ton.

The failure of Messrs. Townshend, Wood, and Co., in the tin-plate trade, for 350,000*l.*, reported last week, has brought to grief the firm

of Messrs. Forester, of Skelty, and Messrs. W. H. B. Morris, of Briton Ferry and Llangennech, for 124,000*l.* It is expected that others will rapidly follow, as several of the works were unable to pay their men last Saturday. The whole trade is paralysed, and the outlook is very black. Until masters keep faith with each other, and resolve to make no more plates than the demand requires, the position of this trade must be insecure.

The contract for the construction of the Roath Dock, at Cardiff, has been given to Mr. Nelson, of Carlisle, who has constructed some large works of a similar character. The price has not transpired, but it is probably between 400,000*l.* and 500,000*l.*

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

Dec. 14.—The change which has taken place in the weather has led to a better business being done in the house coal trade in most of our markets. In London some considerable changes have taken place in consignments, as well as in prices. During October, when a strike of the miners appeared likely, the metropolitan merchants purchased largely, and the colliery owners in Derbyshire, the West Riding, and other districts were able, in consequence, to obtain higher prices, as much as from 10*s.* to 10*s.* 6*d.* having been given for Silkstone, and 9*s.* for the Thick coal. When November came in the merchants held large stocks, were partly independent of colliery owners for the time, and they refused to give the previous quotations. Still coal continued to flow in by railway, and the agents were obliged to sell below the list prices, owing to the market being over-stocked, and at the same time request their principals to send no more for a time. The result was that 40,000 tons less coal was sent to London in November than in the previous month, whilst prices to consumers of certain descriptions of coal were reduced 1*s.* per ton by the merchants. December saw the reduced tariff in force, but with the present weather no doubt the shilling will be again put on. During the present week more coal has been sent from several of the leading collieries in Derbyshire to London, seeing that stocks run out have to be replenished. Clay Cross, it may be said, forwarded 7000 tons less in November than in May, but it is now likely to make up for the deficit. The Pinxton Colliery Company is now forming a good connection in the Metropolis by selling at a lower rate than the merchants. Whilst the latter are charging 24*s.* per ton for Silkstones the company is selling at rather less than 22*s.* The Eckington Colliery has also been doing well of late with London, as has also Grassmoor, Blackwell, and Langley Mill. Steam coal has been in but moderate request for exportation, but there is the usual consumption on the part of the iron manufacturers, whilst the requirements of the railway companies will be greater during the next weeks. An increased tonnage of gas coal has been sent away of late, and a tolerably fair business has been done in engine coal for the Lancashire and other manufacturing districts. There is still a heavy output of pig at the principal ironworks, such as Staveley, Stanton, and Sheepbridge, which are now the largest producers of pig in Derbyshire. There has not been much change as regards the business doing in rolled iron, which has been of but a moderate character for some time past.

In Sheffield there has been more than ordinary activity during the week so far, in some instances the men making a great deal of overtime, employers being desirous of clearing off orders before work is stopped for the year, which will be on the 23rd inst. The contracts in hand for the new steel-faced armour-plates keep the mills going to the full extent, and this will continue to be the case during the whole of the next year at least, so great has been the demand on the part of our own Admiralty as well as foreign Governments. Iron ship-plates have also been in good request, and there is also plenty doing at the mills engaged on sheets and wires. Makers of crucible steel have been busier than usual, the requirements for cutlery and mining and other tools, as well as wheels and axles, being large and increasing. An increased tonnage of hematite has been imported for the makers of Bessemer steel, who are busily engaged on special qualities for cutlery and tool makers in the shape of billets, as well as for rails, for which the demand has recently improved. Most of the cutlery houses have been actively at work, and the men putting in a good deal of overtime. Although for the finer qualities prices have gone up considerably in consequence of the prices of ivory and pearl having gone up; in fact tasks are getting scarce every day, owing to the decimation of their owners, so that before many years are over the genus elephant promises to be classed with the dodo. Still the demand for this class of goods is even better than for the inferior qualities. Edge tools, saws, and files have been in steady request, and the change in the weather has brought to life our skate makers, of whom but little has been heard until within the last week or two, but there is now every appearance that they are likely to have a busy time of it. At the foundries the men are fairly employed, principally in connection with machinery. Not much is being done in pipes, stoves, ranges, or fancy castings. The production of raw iron in the district is still but moderate, Browns having two furnaces in blast and the Thorncliffe Company a similar number.

In the South Yorkshire district an improvement has taken place in the coal trade, so far as households are concerned, whilst prices are firmer. Steam coal has been in but moderate demand; but rather more was sent last week to the Humber for shipment. For the London market an increased tonnage has been sent during the last few days from Mitchell's Main, Darfield, Thrybergh Hall, the Oaks, and Monk Bretton. There appears to have been little foundation for the statement that the colliery owners were about to attempt taking off the 10 per cent. recently conceded. It was thought that the proposed congress for the purpose of arranging for a general limitation of the output of coal had collapsed; but it is now stated authoritatively that it will take place next week in Leeds, and last for three days.

#### REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Dec. 14.—A heavy fall of top rock has taken place at the Welsh Slate Company's quarry at Festiniog, which has thrown a number of slate quarries out of work. "Now is the winter of our discontent" at the Festiniog slate quarries, the Baltic ports being closed for the season. Still, there is a fair amount of home trade, and the usual preparations for spring. In the Nantlle district a number of local gentlemen are writing to work the Brynferm Slate Quarry on the top of Moel Tryfaen. Most of the other quarries are in fair work.

Resuming our journey from Flint we have on our left the Flint Marsh Colliery, and a little further on the Bettisfield Colliery. This is fitted up with many modern appliances, and its sidings are well filled with wagons waiting for loading. On the other side of the estuary of the Dee we see the Neston Colliery, from which the coal measures dip westward under the New Red Sandstone of Cheshire and Lancashire, and crop up 15 or 20 miles to the north-eastward near Huyton and St. Helen's.

In the limestone hills running parallel to the railway on our left, from two to four miles inland, are the great lead mines of Flintshire. There are the slopes of Halkyn Mountain, the mines of which I have on former occasions noticed, and not far on our left is the entrance to the great tunnel that is being driven in order to drain them all. This lead mining region extends until we are close upon Rhyll, where it ends in the great Talargoch Mines. Closer to us, between Flint, Bagillt, and Mistyn are the lead works of the Messrs. Walker, and of Mr. Adam Eytton, where for many years the lead of this and other mining regions has been smelted. We pass on our right the Coles-hill Colliery, also fitted up with modern appliances, and adapted for a large trade. This is followed on the same side by ironworks and by collieries of lesser degree, and these by colliery trials right away to the point of Ayr.

But for the long depression in the coal trade some at least of these would now be in vigorous work. At Holywell we are close upon the copper works, the cement works, and the mills and forges that line the banks of the busy stream that issues from the Well of St. Winnifred. The outlook on the sea side by Prestalyn is not a very cheerful one, consisting as it does of abandoned chemical and cement works. Now we get on to Rhyll Flats, and we see on our left the branch railway leading up to the busy works of the Talar.



goehmines. Further to the east there is the unique cobaltiferous iron mine of Hirediddig, and thus we come to the pleasant watering-place of Rhyl, among the good hostilities of which my readers shall choose their own.

#### PROVINCIAL STOCK AND SHARE MARKETS.

**CORNISH MINE SHARE MARKET.**—Mr. J. H. REYNOLDS, stock and sharebroker, Bodruth (Dec. 14), writes:—During the week a fair business has been done in Dolcoath, East Pool, Killifreth, &c., but at gradually receding prices. At the latter mine a dividend of 1s. 6d. was declared on Tuesday last. Standards were again reduced 2d. yesterday. Subjoined are the closing quotations:—Blue Hills, 1 to 1½; Carn Brea, 7½ to 8; Cook's Kitchen, 33 to 34; East Pool, 49½ to 50; East Blue Hills, 7s. 6d. to 10s.; Gunnislake (Chiters) 3½ to 3½; Killifreth, 3½ to 3½; Mellanear, 4½ to 4½; New Cook's Kitchen, 6 to 6½; New Kitty, 2½ to 2½; North Buay, ½ to ½; Pedn-ar-dra, 2 to 2½; Phoenix, 2½ to 2½; South Condurrow, 9½ to 9½; South Crofty, 9½ to 10; South Franches, 8 to 8½; South Tincroft, 6 to 6½; Tincroft, 6 to 6½; Tregembo, 3 to 3½; West Basset, 6 to 6½; West Franches, 8 to 10; West Kitty, 12½ to 13; West Peavor, 7 to 7½; West Polbrean, ½ to ½; West Poldice, 2 to 2½; West Tolgus, 14 to 16; West Seton, 19 to 20; Wheel Agar, 16½ to 17; Wheel Basset, 8½ to 9; Wheel Grenville, 8 to 9; Wheel Hony and Trelawny, 2½ to 2½; Wheel Jane, ½ to 1; Wheel Kitty, (St. Agnes), 1½ to 1½; Wheel Peavor, 4½ to 4½; Wheel Prussia, 1 to 1½; Wheel Uny, 4½ to 4½; Penhalls ½ to 1; Wheel Coates, 3s. to 5s.

—Messrs. ABBOTT and WICKETT, stock and share brokers, Bodruth (Dec. 14) write:—The market has been sluggish during the past week, but prices do not show any material alteration. Subjoined are the closing quotations:—Blue Hills, 1 to 1½; Camborne Vein, ½ to ½; Carn Brea, 7½ to 8½; Cook's Kitchen, 32 to 33½; Dolcoath, 65 to 65½; Devon Consols, 4½ to 5; East Caradon, 1½ to 1½; East Pool, 49½ to 50; Glasgow Caradon, 3 to 3½; Gunnislake (Chiters), 3½ to 3½; Herodfoot, ½ to ½; Hingston Down, ½ to ½; Killifreth, 3½ to 3½; ex. div.; Marke Valley, ½ to ½; New West Caradon, ½ to ½; North Hordwood, ½ to ½; Old Gunnislake, ½ to ½; Phoenix, 2½ to 2½; Penhalls, ½ to ½; Pedn-ar-dra, 2 to 2½; Phoenix, 2 to 2½; South Condurrow, 9½ to 9½; South Crofty, 9½ to 10; South Franches, 8 to 8½; South Tincroft, 6 to 6½; Tincroft, 5½ to 6½; West Basset, 6 to 6½; West Franches, 8 to 9½; West Kitty, 12½ to 13; West Peavor, 6½ to 7½; West Polbrean, ½ to ½; West Poldice, 2 to 2½; West Tolgus, 16 to 18; West Seton, 19 to 20; Wheel Agar, 16½ to 17; Wheel Basset, 8 to 8½; Wheel Grenville, 8 to 9; Wheel Hony and Trelawny, 2½ to 2½; Wheel Kitty, 1½ to 2; Wheel Prussia, 1 to 1½; Wheel Uny, 4½ to 4½; Wheel Coates, ½ to ¾.

—Mr. S. J. DAVEY, mine share dealer, Bodruth (Dec. 14), writes:—We have had a dull market this week, and lower prices for several mines: 7s. 6d. call was made at South Crofty meeting on Friday, since when shares have been more enquired for: 1s. 6d. dividend was declared at Killifreth meeting on Tuesday. There is very little doing to-day. Dolcoath are in moderate request for forward delivery and weak for cash. Standards are down 2s., to 8s. for common, and 9s. for refined tin. Subjoined are the closing prices:—Blue Hills, 1 to 1½; Carn Brea, 7½ to 8; Cook's Kitchen, 32 to 33; Dolcoath, 64½ to 65½; East Blue Hills, 7½ to 8; East Pool, 49½ to 50; Killifreth, 3½ to 3½; Mellanear, 4 to 4½; New Cook's Kitchen, 6 to 6½; New Kitty, 2½ to 2½; Penhalls, ½ to ½; Pedn-ar-dra, 2 to 2½; Phoenix, 2 to 2½; South Condurrow, 9½ to 9½; South Crofty, 9½ to 10; South Franches, 8 to 8½; South Tincroft, 6 to 6½; Tincroft, 5½ to 6½; West Basset, 6 to 6½; West Franches, 8 to 9½; West Kitty, 12½ to 13; West Peavor, 6½ to 7½; West Polbrean, ½ to ½; West Poldice, 2 to 2½; West Tolgus, 16 to 18; West Seton, 19 to 20; Wheel Agar, 16½ to 17; Wheel Basset, 8 to 8½; Wheel Grenville, 8 to 9; Wheel Hony and Trelawny, 2½ to 2½; Wheel Kitty, 1½ to 2; Wheel Prussia, 1 to 1½; Wheel Uny, 4½ to 4½; Wheel Coates, ½ to ¾.

—Mr. M. W. BAWDEN, Liakeard (Dec. 14), writes:—The mining market shows a further depression on the reduced price of tin, and most shares are only saleable at considerably lower rates, and, no doubt, presents a good opportunity of buying stock in anticipation of the reaction which must ensue, to-day's settlement being very small, and transactions limited. Subjoined are the closing quotations:—Bedford United, 1½ to 1½; Carn Brea, 7½ to 8; Cook's Kitchen, 32 to 33½; Dolcoath, 65 to 65½; Devon Consols, 4½ to 5; East Caradon, 1½ to 1½; East Pool, 49½ to 50; Glasgow Caradon, 3 to 3½; Gunnislake (Chiters), 3½ to 3½; Herodfoot, ½ to ½; Hingston Down, ½ to ½; Killifreth, 3½ to 3½; ex. div.; Marke Valley, ½ to ½; New West Caradon, ½ to ½; North Hordwood, ½ to ½; Old Gunnislake, ½ to ½; Phoenix, 2½ to 2½; Penhalls, ½ to ½; Pedn-ar-dra, 2 to 2½; Phoenix, 2 to 2½; South Condurrow, 9½ to 9½; South Crofty, 9½ to 10; South Franches, 8 to 8½; South Tincroft, 6 to 6½; Tincroft, 5½ to 6½; West Basset, 6 to 6½; West Franches, 8 to 9½; West Kitty, 12½ to 13; West Peavor, 6½ to 7½; West Polbrean, ½ to ½; West Poldice, 2 to 2½; West Tolgus, 16 to 18; West Seton, 19 to 20; Wheel Agar, 16½ to 17; Wheel Basset, 8 to 8½; Wheel Grenville, 8 to 9; Wheel Hony and Trelawny, 2½ to 2½; Wheel Kitty, 1½ to 2; Wheel Prussia, 1 to 1½; Wheel Uny, 4½ to 4½; Wheel Coates, ½ to ¾.

—Mr. JOHN CARTER, mine share dealer, Camborne (Dec. 14), writes:—The share market continues very flat, and prices have further declined. On the 13th inst. the tin standards were again reduced 2s., common to 8s., superior common to 9s., and refined to 9s. Closing quotations are annexed:—Carn Brea, 7½ to 8; Cook's Kitchen, 32 to 34; Dolcoath, 65 to 65½; East Pool, 49½ to 50½; Killifreth, 3½ to 3½; New Cook's Kitchen, 6 to 6½; New Kitty, 2½ to 2½; Penhalls, ½ to ½; Pedn-ar-dra, 2 to 2½; Phoenix, 2 to 2½; South Condurrow, 9½ to 9½; South Crofty, 9½ to 10; South Franches, 8 to 8½; South Tincroft, 6 to 6½; Tincroft, 5½ to 6½; West Basset, 6 to 6½; West Franches, 8 to 9½; West Kitty, 12½ to 13; West Peavor, 6½ to 7½; West Polbrean, ½ to ½; West Poldice, 2 to 2½; West Tolgus, 16 to 18; West Seton, 19 to 20; Wheel Agar, 16½ to 17; Wheel Basset, 8 to 8½; Wheel Grenville, 8 to 9; Wheel Hony and Trelawny, 2½ to 2½; Wheel Kitty, 1½ to 2; Wheel Prussia, 1 to 1½; Wheel Uny, 4½ to 4½; Wheel Coates, ½ to ¾.

**MANCHESTER.**—Messrs. JOSEPH R. and W. P. BAINES, share-brokers, Queen's Chambers, Market-street (Dec. 14), write:—We have to report only a very moderate amount of business passing during the past week, the inactivity being contributed to by various causes. The arrangement of the account, as usual, has engaged much attention during the last three days, and the severe weather checking business in all directions, has interfered with railway traffic, and had its effect on buyers. These influences, coupled with the usual curtailing of engagements towards the close of the year, will account fully for the paucity of transactions. Whilst little new business is being entered upon, however, figures on the whole do not show much depreciation, and the tone, though dull, is steady. Egyptian stocks have fluctuated a little on the week. Unifield show a gain of ½. Dulinea is the feature in several classes of miscellaneous shares; but only in insurance shares is the course of prices distinctly downwards.

BANKS quieter than of late, very few dealings being recorded. Where lots have changed hands, however, figures fully up to, or very near best lately obtained have been realised. Lancashire and Yorkshire have eased a trifle, sellers being down ½, whilst buyers' figure remains unaltered. On the other hand, Consolidated and Manchester and Salford show additional strength, as movements therein have been sellers advancing, and buyers unmoved. Union of Manchester have fluctuated somewhat, and transactions are reported at extremes of variation, but they are unaltered on balance. The only instance of actual quotable change is a decline of about ¼ in National Provincial, new.

INSURANCE shares, doubtless owing to the actual loss in late disastrous fires, or in sympathy are down all round, where changed at all, and only a trifling business has passed here. Lancashire remain unchanged on the buyers' side; but are offered ½ lower. There is no instance where advance is marked. The following are the closing quotations:—Commercial Union, 1½ to 1½; London and Globe, ½ to ½; Lancashire and Yorkshire Accident, ½ to ½; Manchester Fire, ½ to ½; Ocean Marine, ½ to ½; Queen, ½ to ½; Reliance Marine, ½ to ½; Royal (Liverpool), ½ to ½; and Positive Life, 3d. to 5s., 5s. 6d.

**COAL, IRON, & MINING.**—The severe weather has put a little life in the coal trade; but figures have not responded much. There is not the all-round decline to note-day that we have had to remark recently; but some sensible further downward movements are made; but, on the other hand, to set against them there are a few instances in which better prices prevail. Bolekows, 12s. paid, keep steady and unmoved; the fully paid, however, after marking distinctly lower, have rallied briskly, and now show an advance. Canadian Copper are a trifle lower again; but Tharsis have gone better. Nanty-Glo and Blaina, pref., are down lower sellers; buyers' figure without alteration. Sharp Stewarts are again marked decidedly lower. Higher: Bolekows, fully paid, ½ to ½; Tharsis Sulphur and Copper, ½; Cammella, ½; and Indian Glenrock Gold, ½. Lower: Sharp Stewarts, 2; Pelsall Coal and Iron, ½ to 1; A. Knowles and Sons, ½; West Cumberland, ½; and Canadian Copper and Sulphur, 5d.

**COTTON SPINNING.**—The market keeps strong with nothing apparent for cause, save the operations of speculators.

**TELEGRAPH.**—Neglected as regards transactions; but quotations are either unmoved or changed for the better, the following being higher:—Anglo-American Preferred, ½; ditto Deferred, ½; and Eastern, ½. TELEPHONES: Very little doing; Lancashire and Cheshire are practically without change, but Unifield are down ½.

**CORPORATION STOCKS.**—An advance of ¼ to ½ in Leeds Corporation stock and the alteration of quotation for Manchester Corporation stock, consequent on latter being now ex. dividend, comprise the whole of the movements herein.

—**MISCELLANEOUS.** Beyond a further decline of 1½ and 1½ to 1½ in Anglo-American Brush Electric Lights and Hudson's Bays, there are no features of importance.

**RAILWAYS.**—The severe weather of the past week has in several instances seriously affected traffic, and prices have consequently receded. Caledonian, Great Western, and Sheffield showing worst; there is coupled with this a vast amount of business, and this has caused selling in stocks held by weak "bulls." Brighton A. have, as usual, moved about, and on the week an advance is established. South-Eastern A. have exhibited remarkable activity to-day, and record a sensible improvement. Canadians do not receive much support, and their traffic to-day being under 15,000, increase caused some free selling. At the close though the tone is steeper there is an uncertain feeling. It is reported that the war of rates among the American Western lines has been amicably settled, so that to-day in many cases a substantial advance has resulted, and the tone is more hopeful.

#### SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

**STIRLING.**—Mr. J. GRANT MACLEAN, sharebroker and ironbroker (Dec. 14), writes:—During the past week markets have been dull, owing to the unfavourable weather, and the fortnightly settlement intervening. Although rates of continuation to the next account for the settlement (Dec. 29) have been light, there is no increase of animation yet; and it is noticeable that the last account of the year is generally a dull one. The Board of Trade Returns are satisfactory, and the Money Market easy, so that it is likely a recovery will set in after a while.

In shares of coal, iron, and steel companies prices are steady. In the Scotch

pig-iron market the price of warrants declined from 49s. 5d. to 48s. 5d., owing to the absence of business, but a recovery has set in. There has been an exaggerated feeling of depression, which is not warranted by the tone of the trade, which is generally inclined to be cheerful, and there are many and good reasons for looking forward with hope and confidence to satisfactory and brisk business in the spring, and a substantial advance in the price of Scotch warrants. Llynvi and Tondur are at 7½ to 7½; New Charleston (pref.), 6 to 7; Newport Abercrombie, 8½ to 9½; Pelsall Coal and Iron, 14½; and Rhymney Iron (new), 13s. 9d. to 21s. 3d.

In shares of foreign copper and lead concerns prices are generally easier in sympathy with the dull copper market. Tharsis declined to 30½, but are now firmer at 37½. Bratsberg are at 35s. to 40s.; Belt, par; Hungarian, 4s. to 5s.; Mason and Barry, 15½ to 16; Pierrefite, ordinary, 15s. to 20s.; Santa Cruz, 1s. 6d. to 2s. 6d.; Soubac and Catil-Ain, 12s. 6d. to 17s. 6d.; and Sentein, 10s. to 15s.

In shares of home mines prices are steady, and there is no particular change to notice. The next sale of Glasgow Caradon will be 170 tons on Dec. 21, which compares with the same amount in October. There was no sale in December last year, but in November of that year the sale was only 110 tons. For previous years December's sales ranged from 160 to 200 tons. Bickton offered Bwch United are at 10s. to 12s.; Carn Camborne, 12s. to 20s.; Devon Friendship, 5s. 6d. to 6s.; East Roman Gravel, 3s. 9d.; East Craven Moor, 4s. to 6s.; East Chiverton, 7s. 6d. to 12s. 6d.; East Blue Hills, 7s. 6d. to 10s.; East Wheel Rose, 3s. to 4s.; Gorsead and Merilyn, — to —; Gwydyr, 5s.; Gobbett, 20s.; Gawton, 7s. to 12s. 6d.; Herodfoot, 2s. to 4s.; Indian Queens, 5s. to 7s. 6d.; Mounts Bay, 12s. 6d. to 17s. 6d.; Mount Carbis, 70s.; New West Goginan, 15s. to 20s.; Old Shepherds, 17s. 6d. to 22s. 6d.; Parkas, 5s. to 10s.; Polyn Wood, 2s. 6d. to 5s.; South D'Eresby, 5s.; Sortbridge, 5s.; South Crofty, 10½; Treaveans, 20s. to 25s.; Tankerville, 5s. to 6s.; Tamar, 15s. to 20s.; Tin Hills, 5s. 6d.; Yatwith, 3s. 5d.; Walkham United, 2s. 6d. to 5s.; West Lisburne, 12s. 6d. to 17s. 6d.; West Mary Ann, 5s. 6d.; West Phoenix, 5s. 6d. to 10s.; Wheel Crebor, 5s. to 5s. 6d.; Wheel George, 10s. to 15s.; Wheel Jane, 15s. to 20s.; and Wheel Lusk, 1s. to 3s.

In shares of gold and silver mines business continues quiet. Crooke's Mining and West African offered; Akankoo, 10s. to 12s. 6d.; Californian, 18s. 8d. to 21s. 3d.; Colombian Hydraulic, 6s. 6d. to 7s.; Central Wymad, 5s. to 10s.; Don Pedro, 1s. 3d. to 3s. 9d.; Eureka (Nevada), 3s. 9d. to 6s. 3d.; Guinea Coast, 15s. to 20s.; Gold of Canada, 5s. to 10s.; Indian Consolidated, 7s. 6d. to 10s.; Kapanga, 17s. 6d. to 20s.; La Plata, 32s. 6d. to 35s.; Mysore Reef, 2s. 9d.; New Callao, 5s. to 10s.; Nava de Jadraque, 2s. 6d. to 5s.; New Gold Run, 3s. 6d.; ditto Preference, 4s. 6d.; Oregan, 1s. 3d. to 3s. 9d.; Port Phillip, 2s. to 4s.; Silver Peak, 1s. 6d. to 2s. 6d.; and Sumbria Reef, 1s. 6d.

In shares of oil and miscellaneous companies the principal feature is a good advance in shares of oil companies. Lawes' Chemicals, 6½ to 6½. Nobel's Explosives lower, at 21½.

**EDINBURGH.**—Messrs. THOMAS MILLER and SONS, stock and share brokers, Princes-street (Dec. 13), write:—The railway market has during the past week continued very quiet, and the changes in prices have been unimportant. On the whole, the tendency has been to lower prices, a circumstance which may in part at least be attributed to the severe snowstorm. Caledonian has receded from 109 to 108½. North British from 100½ to 100½. Great North of Scotland from 54½ to 53½. Highland from 95 to 94½. Canadians and Americans are somewhat lower. The stocks of some of the banks have improved. British Linen has risen from 312 to 312½. Royal from 218 1/8 to 216½ ex. div. Commercial from 56 to 57½. Union from 23½ to 24. A fall in North British and Mercantile from 30½ to 28½ is almost the only change in insurance shares. The decline is chiefly attributable to the great fire in London. The business done in the shares has been very limited. A considerable business has been done in Arizona Copper shares, which have advanced from 8½ to 9s. 6d., 3d. paid. The lowest price at which they have changed hands since the meeting was 9s. 6d., and the highest 9s. 6d. The first statutory meeting was held here on the 8th inst., when it was intimated that a 10 per cent. dividend would probably be paid next month from profits already earned. The company is one of the largest mining undertakings ever introduced here, the nominal capital being 875,000. The statements made at the meeting were considered favourable. Tharsis have receded from 37½ to 36½. Marbella Iron Ore from 5½ to 5½. Oil shares have been good. Young's Paraffin have advanced from 13 to 13½. Broxburn from 22½ to 23½. Burntisland from 14½ to 15½. Dalmeny from 25½ to 26½. Midlochan from 7½ to 8½. Uphall from 9½ to 10½. Prairie Cattle shares have receded from 14½ to 14. Edinburgh Tramway shares from 11½ to 11.

#### IRISH MINING AND MISCELLANEOUS COMPANIES SHARE MARKET.

**CORK.**—Messrs. J. H. CARROLL and SONS, stock and share brokers, South Mall (Dec. 13) write:—There was no feature whatever in markets to-day. Great Southern remain 115½, and Midlands were done at 89; Bandons were offered at 90, and Macrooms asked for at 5. National Banks were done at 2½, and Munsters at 6 1/8-16ths. Hibernians also changed hands at 32. No change in Provincials. Cork Steam Packets remain 10½, and Lyons shares at 9½. Gresham Hotels are 3½, and Breweries at 5½. Gouddings were asked at 5, and Leys offered at 5½. Gas shares wanted at 6½, and Lyons Debentures were bought at 10½.

#### FOREIGN MINING AND METALLURGY.

The intelligence received with respect to the Belgian coal trade is still favourable. There has been no progress made in quotations, but as prices are already at a comparatively high level, it is, perhaps, better that this should be the case. The winter thus far has been damp, but not very cold in Belgium, and the demand for household coal has not been very active at present, the result being that prices have exhibited, if anything, a slightly downward tendency. It appears from official tables that the imports of coal into Belgium in the first 10 months of this year amounted to 828,774 tons, as compared with 804,270 tons in the corresponding period of 1881. The imports of coke into Belgium in the first 10 months of this year were 12,820 tons, as compared with 18,421 tons in the corresponding period of 1881. Of the coal imported into Belgium in the first 10 months of this year 283,656 tons came from Prussia, 248,420 tons from the Low Countries, 210,628 tons from Great Britain, and 85,950 tons from France. The imports of English coal into Belgium will be seen to have slightly increased this year. As regards the Belgian export coal trade it appears that the aggregate quantity of coal exported from Belgium in the first 10 months of this year was 3,455,375 tons, as compared with 3,574,644 tons in the corresponding period of 1881. The exports of coke from Belgium in the first 10 months of this year were 906,255 tons, as compared with 743,333 tons in the corresponding period of 1881. Of the coal exported from Belgium in the first 10 months of this year 3,267,266 tons went to France, as compared with 3,367,165 tons in the corresponding period of 1881. It will be seen that the movement of Belgian coal to France has experienced a slight decrease this year. The general tone of the German iron market has continued satisfactory.

The tone of the Belgian iron trade has remained unchanged upon the whole, but the future is regarded with a certain uneasiness. It is true that orders still come to hand, but they are less numerous than formerly. The great industrial establishments are still well employed; some of them, for instance, have locomotive orders on hand which will keep them occupied until 1884, and others cannot undertake new contracts except with remote periods of delivery. Smaller establishments are, however, in a less satisfactory condition, and the situation, notwithstanding some brilliant exceptions, is certainly less favourable than it was two or three months since. The Belgian Government proposes to profit from current circumstances, and will offer for adjudication before the close of the month 18,400 tons of steel rails to be delivered in the course of 1884. Upon this latter condition it is expected that the Government will be enabled to secure the 18,400 tons of rails upon favourable terms. Pig has been pretty well supported upon the Belgian markets. Refining pig has averaged 27. 8s. per ton, while ordinary pig has made 27. 4s. per ton. Iron has shown less activity upon the Belgian markets; transactions have been less numerous, and the rolling mills would probably not be indisposed to make some slight sacrifices in order to secure business. It may be noticed, however, that fresh proposals for contracts for iron have been received in Belgium from Australia. Some business is also hoped for on Chinese account. Girders have been supported at 57. 12s. to 57. 16s. per ton. Plates have continued to be officially quoted at 77. 12s. per ton, but they are obtainable at some points at 77. 8s. per ton. Boiler plates have made 87. 4s. 8d. per ton. It appears that the export of iron rails from Belgium declined in the first 10 months of this year to 19,190 tons, as compared with 30,585 tons in the corresponding period of 1881. This decline is attributable, of course, to the continued progress of steel rails.

Prices have not materially changed in the French iron trade during the past week. Iron has continued to make 77. 16s. per ton at Paris. Orders have rather fallen off at some construction works recently established in France, but the State will soon require a large quantity of rolling-stock for the French Government railways. The probable expenditure of the Government under this head is estimated at no less than 7,200,000. General small lines of local interest will also require rolling-stock in the course of next year. The Northern and Eastern Forges and Steelworks Company has recently brought its steelworks into operation. These works when in full activity can turn out 300 tons of steel in 24 hours; at present the daily production does not exceed 100 tons. The company in question has just

obtained a contract for 3300 tons of steel rails from the Indre-et-Loire Departmental Railway Company. The exports of steel rails from France in the first 10 months of this year amounted to 104,300 tons, as compared with 13,200 tons in the corresponding period of 1881. The imports of iron minerals into France in the first 10 months of this year were 1,166,939 tons, as compared with 1,103,698 tons in the corresponding period of 1881. Of the iron minerals imported into France to Oct. 31 this year 310,438 tons came from Germany, 413,249 tons from Spain, and 265,936 tons from Algeria. The condition of the German iron trade is still generally satisfactory, although prices are not at the level at which they stood a month or six weeks since. The German works devoted to the production of railway plant are well occupied.

#### ELECTRO-MERCURIAL PROCESS OF EXTRACTING GOLD AND SILVER.

An improved method of extracting gold and silver from their ores by the combined action of electricity and mercury specially applied in special apparatus has been invented by Mr. RICHARD BARKER, of Seacombe, Cheshire. He provides a table, insulated or not, in which he places two or more riffles, or baths, containing mercury, at convenient distances from one another, and fitted, or not, with the ordinary agitators. Over this table the quartz, alluvial deposit, or other matter containing gold, silver, or both these metals, is washed by the ordinary method. A current of electricity is then passed through the apparatus, by one or more suitable conductors, in the following manner. The negative pole (or cathode) of the battery, or other source of electricity, is connected with the mercury in the riffles, and the positive pole (or anode) is introduced into the water, immediately above the mercury, and sufficiently close to it, to cause an energetic action, the electric current being allowed to pass through the water, by placing in it, at convenient distances, plates or wires of copper, or other good conductors of electricity.

It is necessary to keep the mercury covered with a stratum of water, as the action of the mercury is thereby properly maintained. The introduction of an electric current into the water causes continual agitation at the surface of the mercury, prevents it from what is technically termed "sickening" in the presence of arsenic, sulphur, oil, or any other substances known to act in like manner, and which are deleterious to the action of mercury in amalgamating with gold or silver; and also prevents titanic sand, or other heavy mineral deposits, from remaining on the surface. The surface of the mercury immediately under and around the copper plates, wires, or the like, is kept thoroughly bright and capable of amalgamating readily with gold and silver, despite the presence of foreign substances. The conducting plates, wires, or the like, he makes either stationary, or movable, and attached to the riffles, taking care, however, that if revolving, or otherwise in motion, the plates or wires shall never come into contact with the mercury.

#### RICHMOND CONSOLIDATED MINING COMPANY.

The report of the directors prepared for presentation at the meeting on Wednesday next states that during the half-year extensive explorations have been made in the mine; 4268 feet of drifts and winzes having been run and sunk. Ledge matter and low grade ore have been met with in many places on the 700, 800 and 900 levels, and, as the shareholders were informed by circular of Sept. 19, small pockets and seams of good ore had been discovered on the 700 and 900; since that date other pockets and pipes of ore have been discovered on the 800 level, and another pipe of ore on the 900 level. Connections have been made between these levels, and the fact established that there is an ore channel running down from the 600 to the 900, a distance on the incline of about 500 feet, which has already produced some good ore. The limestone in these levels is as promising as any in any part of the mine, and the quality of the ore found is as good as the best and of the same character. There is still a great deal of exploring work to be done between the 600 and the 900 levels, as well as on the upper levels of the mine above the 300, where work is being carried on, the indications on the 300 level are very favourable, and some good ore has been recently found there which promises to open up to a larger body. The latest reports from the mine are much more encouraging as to the probability of finding ore bodies both in the upper and lower levels. A new level—the 1050 ft.—has been started, running westerly to cut the ground in the direction of the dip of the descending ore channel. This drift has been run 205 ft., but it will have to be run much further before anything definite can be known. It is probable that the explorations in the mine will have to be stopped for a short time in January, as the air-compressor and machinery need overhauling, and the main shaft requires new timbering in places.

The company, as was mentioned in the previous report, recently purchased the Hoosac Mine, situated a few miles from the Richmond, as well as the dump of slag from the Hoosac furnaces. The purchase has been a satisfactory one. The profit on the slag (which is very useful as a flux for the Richmond ore) has repaid the purchase-money of both the mine and the slag dump. Prospecting will be vigorously carried on here by the company, and also by tributaries: 100 tons of ore have already been sent down to the furnaces from this mine. During the half-year the large furnace has been running continuously, and has reduced 1,333 tons of Richmond ore, 1852 tons of purchased ore, and 340 tons of blue dust, &c., together 3525 tons, the average yield per ton being 85°50 (Eureka assay value). No. 4 furnace (which was shut down on Oct. 2) smelted in the half-year 6395 tons of Richmond and 80 tons of purchased ore. The total quantity smelted in the half-year is 18,980 tons, yielding 2562 tons of lead, 319,282 ozs. of silver, and 2562 ozs. of gold. The quantity of ore smelted by the large furnace from the week ended March 7 to the week ended Aug. 29 (both inclusive) was 12,133 tons, and the gross estimated value of the bullion (gold, silver, and lead) at Eureka assay value was \$816,000, exclusive of the quantity smelted by the refinery furnaces. On Nov. 15 the large furnace was shut down, and No. 4 furnace was started in its stead. The refinery has been working continuously during the half-year in a most satisfactory manner; without the aid of refinery the profitable reduction of the low grade ore would have been impossible, and the directors are more than ever convinced of the advantage it is to the company, and the satisfactory profits made are in a great measure due to it. The company have lately made arrangements for refining the bullion of another mining company, amounting to from \$30,000 to \$40,000 a month, on terms which will be advantageous to both parties. The gross estimated value of the doré bars (gold and silver), also at Eureka assay value, excluding the value of the lead from the week ending March 7 to the week ending Aug. 29 (both inclusive) was \$612,000.

After charging revenue with all the costs and expenses of the explorations and dead work—which have been very heavy this half-year—and the cost of maintaining the works in a thorough state of repair, the profits for the half-year will probably be about 30,000., so that (after paying the 5s. dividend in August, and providing for the 5s. dividend paid in November) the reserve fund of 75,000., as well as the balance of 26,000., brought forward from last year's accounts, remain intact. This, considering the low grade of the ore and other unfavourable circumstances, the directors regard as satisfactory. The company lately sold 5000 tons of lead for delivery during the present year at 4°5 cents per lb. (202. per ton), and they have now at Eureka about 7000 tons, which was valued in the last balance-sheet at 4°5 cents; the latest quotations at New York for small parcels is now 4°80 cents.

The half-year has been one of great anxiety, not only to the directors and shareholders, but also to Mr. Probert and the officers of the company at Eureka. It is now twelve months since good ore was struck below the 600 level, which promised as well at first, but which soon pinched in. Explorations have been carried on continuously since that date, and at times the prospects of finding large bodies of ore have been good. A continuous body of ore has now been proved to exist between the 600 and 900; the greater part, however, of the ore passed through has hitherto been of low grade, although occasionally pockets and veins of rich ore have been met with. There is a large extent of unexplored ground between these levels of which, as Mr. Probert writes, we know nothing, but may hope everything. It is only by persistently following the ore channel already exposed in this ground that we can thoroughly prove this part of the mine, and find, sooner or later, the ore bodies which are believed to exist here. It is with satisfaction the directors are enabled to state that the prospect of finding these ore bodies are at the present time more hopeful than they have been for some time. Mr. Probert, in his latest communication on this subject, says—"While there is not much improvement to boast of there is certainly nothing discouraging to report. The ground continues favourable at many points between the 700 and 900 levels, and several small 'pipes' and 'pockets' continue to be found, some of which may fairly be expected to lead to an ore body sooner or later. . . . The position and prospects of the Richmond are to-day better than those of most of the mines I am acquainted with in this part of the United States."

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## THE IRON AND TIN DEPOSITS OF TUSCANY.

## CAMPIGLIA MINING DISTRICT—No. IV.

By BREXTON SYMONS, F.C.S., Assoc. M. Inst. C.E., &amp;c.

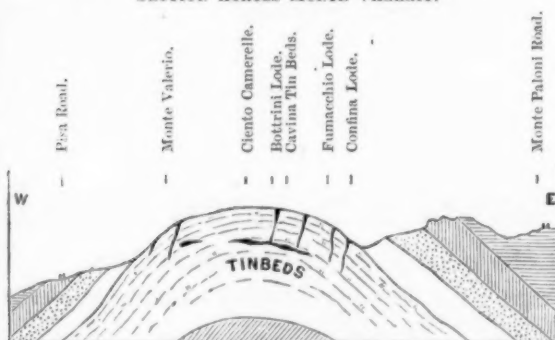
The mineral tract of Campiglia is separated naturally into nearly equal portions by the Fucanaya valley, through which runs the highway to the town of that name. There is also some difference in the mode of occurrence of the useful minerals, for whereas the deposits to the north of this valley were observed to be distinctly associated with eruptive rock, those to the south are enclosed in limestone, in which metamorphism has not so far advanced as to obliterate the sedimentary beds, and where consequently the depositions are of less importance. Though the fractures are frequently small, are interrupted, and possess no great vertical persistence, yet much brown hematite and cassiterite have been extracted from them and sold in England. The huge caverns on the backs of some of the veins were perhaps excavated by the Etruscans in search of lead oxides.

**MONTÉ VALERIO.**—This iron mine is situated close to the Via Emilia at the 48th milestone on the road from Pisa to Rome. From the stream-like appearance of the rough ground above the iron lode one is led to imagine that the ancients may have worked here for tinstone. These old rubbish heaps are, however, not very extensive, and on the samples taken being vanned only minute traces became visible. In 1872 a level was commenced on an irregular course of brown ore, and continued under the old workings. In the ironstone a small fractional percentage of tin oxide was found, and from some of the fissures filled with clayey debris a few rich nuggets of tinstone were gleaned. It would thus appear that the tin beds of Fumacchio continue quite along the side of Monté Valerio, and that the apparition of that ore in the mine may be due to the degradation of the stanniferous limestone stratum above. At Cassa Lega, a short distance in the direction of Fumacchio, many hollows similar to those of Ciento Camerelle have been dug out of a stratum of limerock. Several thousand tons of limonite containing 50 per cent. of metal have been raised from Monté Valerio, but, the lode contracting both in length and depth as it penetrates the mountain side, there is little expectation of its yielding hereafter any large quantity of ore.

**FUMACCHIO TIN MINES.**—This interesting mineral property is immediately to the east of Monté Valerio; the strata of limestone are identical, and the fractures contain brown ore of similar character. The mines were opened for the extraction of iron in 1873. The mine called Ciento Camerelle, or the hundred chambers, is generally admitted to have been exploited by the Etruscans for tin, and innumerable small caves and hollows—fashioned before the discovery of gunpowder—were with patient labour made into the hard crystalline marble in search of this valuable metal. Centuries elapsed, and not the faintest tradition of the tin mines descended to modern times, but the numerous indication of hematite on the slopes of the mountain inviting exploration, the mines were opened in 1873 for the extraction of brown ore. In the course of the three following years 4000 tons were sold in England, but the buyers complained that the ores induced the formation of scaffolds in the furnaces. Analyses were then made, and tin in small percentages having been detected in almost every sample, was afterwards shown to be the contamination which rendered the reduction of the iron so troublesome. This unexpected result of this investigation led to a close examination of the old workings and galleries, and on some of the most profound being prolonged, a quantity of white tinstone was collected from crevices in the limerock and sold to English smelters. The stanniferous stratum of limestone continued to be exploited in a fitful manner, but although rich ore was constantly met the importance of the discovery was not fully recognised until 1881, when it was satisfactorily established that much of iron ores themselves concealed so large a percentage of tin oxide as to render them very valuable. In 1877 a level was commenced 150 metres east of the Ciento Camerelle into the same kind of rock, and much tin ore exposed, though of such inferior quality to the rich tinstone that it was unsaleable. During the past four years this level has been driven a considerable distance into the mountain, and has been so burrowed in following the small tin leads that the workings are now as worthy of the name of the hundred chambers as the ancient caves. It has received the name of Cavina.

Some 200 metres further eastwards the small veins of Fumacchio and Confina have been worked for iron ore. These were at every point tested for tin, but the vanning shovel gave no sign of its presence. These lodes of brown oxide dwindle quickly in depth, and no great quantity of mineral can exist in them. From the small meridional fractures have been raised some 6000 tons of brown hematite, yielding 47 per cent. of metal. The base of the southern flank of the mountain of Fumacchio where it slopes precipitously into the charming valley of Romanella, has been proved to be tin-bearing from the small ravine west of the mine of the hundred chambers eastward through the Cavina Mine to the vein of limonite which is called Fumacchio. Although traces only of tin have been found at Monté Valerio (which is a continuation of the Fumacchio ridge) yet the rock is evidently the same, and the mineral indications are sufficiently pronounced to claim a search for the stratum of limerock which yields the tinstone.

## SECTION ACROSS MONTE VALERIO.



The basal edge of the calcareous tin stratum contours the side of the mountain horizontally for about 500 yards, though it rises slightly in going north. It is often discernible, but on account of the undergrowth and mountain debris its complete continuity cannot be determined. Indeed a study of the strata of both tin mines raises a doubt whether there may not be two layers of limerock which are tin-producing. Should future exploration confirm the existence of a second bed, the value of the mines would be largely increased. The contorted and largely drusy rock which holds the tinstone reposes on hard blue compact limestone, whilst the roof is a highly crystalline rock of light colour and marble-like texture. Farther up the mountain the succession runs into the ammonite beds, and sometimes what appear to be patches of schisti-varicotti are encountered. The stratum which carries the tin has been eroded by some means into numberless cavations and tortuous fissure-like passages, which have subsequently been filled by tinstone associated with iron oxides and calcareous spar. The tin ore is usually of high produce, containing from 40 to 70 per cent. of metal; but both at Ciento Camerelle and Cavina there are irregular masses of stanniferous brown ore, which have been raised and sold for ironstone. All the piles on the dump were sampled, and whilst some tried 100 lbs. to the ton, all concealed sufficient tin to leave an excellent profit on reduction, indeed, the poor iron ore picked out and thrown over the waste tips contained a workable percentage. It is worthy of remark that the tin ground is intersected by several fissures having a direction north and south; they are nearly perpendicular, and rarely exceed 2 ft. in width, and with the exception of a little iron

are void. They will much facilitate the working of the mines in the future. The tinstone is not found either above or below the particular stratum exploited, as long levels driven for its discovery in the associated strata have been without result. It should, however, be mentioned that at Ciento Camerelle a sinking made in a confused mass of ironstone proved rich in tin, and it is possible that the development of this point may afford some information to aid in explaining the segregation of tin in the beds of the limerock.

The tin ore, of medium grain, is remarkably white and transparent where raised from the water-worn cavations of the metamorphic limerock, from which it is separated by a layer of calcareous spar; but the black tin vanned from the limonite is of a dirty grey, with rarely light shades of yellow and brown. Consequently the ore may be considered as exceptionally free from impurities, and could be concentrated to a very high produce, and smelted into slabs of superior quality. The following analyses were the result of samples taken from piles on the mine floors.

## ANALYSES OF TIN ORE RAISED AT CAMPIGLIA.

	Monte Valerio.	Ciento Camerelle.	Cavina.	Confina.
Cassiterite .....	78.80	92.40	24.83	11.92
Iron oxide .....	1.80	3.49	4.23	16.61
Alumina .....	1.70	—	—	—
Carbonate of lime.....	Trace	3.34	68.00	39.19
Manganese .....	Trace	—	—	—
Lead, copper, bismuth ..	—	—	—	—
Arsenic acid .....	—	—	—	—
Silica .....	17.80	—	1.36	28.07
Water and undetermined ..	0.90	0.77	1.29	4.21
Fine tin .....	61.60	72.40	19.69	9.39

Owing to the extent and direction of the tin beds having been imperfectly known, the workings were advanced into the stratum by closely following the oft interrupted sinuosities of the water-worn limerock; the levels are consequently tortuous and inconvenient for transport, but now that the mode of deposition is better understood regular galleries adapted to its suitable exploitation will be driven. The total quantities of tin raised from the irregular exploitations amounts to about 150 tons. In the absence of reducing machinery the tinstuff was hand-picked, and sold in England as black tin. Its exceptional richness was such that the first consignment of picked ore was ready for the smelting furnace. However after 80 tons had been expedited, the next 20 ton parcel, containing only 43 per cent. of metal, so many charges were incurred for cleaning it that it was ultimately recognised that the successful development of the deposits demanded stamping power and concentrating apparatus. For this purpose a Husband's pneumatic stamper has been purchased with the machinery necessary to separate, not only the tin, but also the iron sand of which the gangue mostly consists, and which the elimination of the tin will render much more valuable. It may be added that the raising of the 150 tons of tin resulted in an excellent profit.

**BOLTRINI IRON MINES.**—On the northern declivity of the Fumacchio ridge, some 400 yards distant from the Ciento Camerelle and Cavina tin mines, are the iron lodes of Boltrini, Mancini, and Gotti, which from their situation and direction would appear at first sight to be a continuation of those worked at Monté Valerio and Fumacchio. They cannot be traced across the hill, are irregular in size, rarely attain a width of 3 ft., and evidently dwindle in depth. The limonite which they yield is of fair quality, and a considerable quantity has been sold, notwithstanding the difficulty of transport down the side of the mountain over a wretched road. There are many workings on the course of the veins, interesting because they occur in strata similar to those in which the tin mines have been opened, which would seem to crop out also along the northern slope, as in one place tin has been found. It is just possible that the stanniferous limestone may pass completely through the mountain, in which case the value of the rocky brushwood-covered mountain would be considerably increased. On the eastern slope of this side of the mountain, about 300 yards from Boltrini lode, is an old working from whence issues warm vapour, which with a low temperature becomes visible. It was on account of this phenomenon that the peasants gave this part of the mountain the name of Fumacchio.

## THE POST OFFICE LONDON DIRECTORY.

Again we have to notice the issue of the new annual edition—the 84th—of the Post Office London Directory which has so long since attained as nearly as practicable to perfection that nothing more highly commendatory of it can be said than that it is in every respect equal to its predecessors. Applying the usual test of the value of a directory—reference to recent changes in order to ascertain whether the corrections have been brought down to the latest date—it must be acknowledged that the result is in the highest degree satisfactory. The lamented death of Dr. Tait is duly noticed by the omission of his name as the occupant of the archiepiscopal see of Canterbury, and we notice also that the name of the Right Hon. Sir Wm. Hutt, K.C.B., whose death was announced on Nov. 27, is also taken out of the Official Directory in the several places in which it would have occurred. The alterations rendered necessary by the resignation of the Right Hon. Spencer Walpole, for Cambridge University, and the return of the Right Hon. H. C. Raikes, late member for Preston, to succeed him, have been attended to in the Official Directory in four places; Parliamentary Directory in three places, and in the Court Directory. Again the new School Board for London, elected Nov. 24, is accurately given in the Official Directory in its proper place. Several other references have also been made, but these will suffice.

The examination of the changes which become necessary from year to year through new trades springing into existence is at all times interesting, and there is in the present edition plenty of room for research as no fewer than 133 new trades are added—amongst them being such trades as Carbonate (black diamonds) Merchants, Diamond Mining Engineers, Electric Light and Power Contractors, Electric Light Fitting Makers, Electric Globe Manufacturers, Electrolier Manufacturers, Ferro-Manganese Manufacturers, Silicate Co-ton Manufacturers, and Slag Wool Manufacturers, so that the utmost possible facilities are afforded for obtaining instant information as to any particular business which it is desired to enter upon. The Directory is printed and got up in the same unexceptionable manner as usual, and there is really nothing in any part of it in connection with which any improvement could be suggested.

**PATENT AGENCY.**—Mr. William Spence, whose name is well known to the readers of the *Mining Journal*, and whose patent practice is derived from an experience of upwards of 43 years, notifies that after Christmas he will take into partnership his son, Mr. William Heather Spence, who will bring into the business a knowledge of chemistry and electricity, and will be specially qualified to deal with inventions relating to those subjects, which it may be confidently anticipated will require more attention from patent agents in the future than they have hitherto received.

**THE SOCIETY OF ENGINEERS.**—The twenty-eighth annual general meeting of members was held on Monday in the Society's Hall, Victoria-street, Westminster. The chair was occupied by Mr. Jabez Church, President. The following gentlemen were balloted for and duly elected as the council and officers for the ensuing year:—As President, Mr. Jabez Church; as Vice-Presidents, Mr. F. E. Duckham, Mr. Arthur Rigg, and Mr. C. Gandon; as ordinary members of council, Mr. R. Berridge, Mr. Perry F. Nursey, Mr. A. F. Phillips, Mr. W. Schonheyder, Mr. Arthur T. Walmisley, Mr. T. H. Hovenden, Mr. Henry Robinson, and Mr. John Waddington, the three last-named gentlemen being new members of council; as honorary secretary and treasurer, Mr. Alfred Williams; and as auditor, Mr. Alfred Lass. The proceedings terminated by a general vote of thanks to the council and officers for 1882, which was duly acknowledged by the Chairman.

**HOLLOWAY'S OINTMENT AND PILLS.**—Multitudes suffering under a complication of disorders might obtain relief through these healing and purifying remedies, which should be employed without a day's delay. When the weather is variable, and colds and influenza prevalent, this ointment, well rubbed upon the throat and chest, gives the greatest ease, and checks all tendency to inflammation in the lungs and other organs. The pills assist the curative action of the ointment, inasmuch as they purify the blood, and so quicken its circulation that congestion is rendered almost impossible. Holloway's ointment deals most successfully, too, with that very troublesome and often tedious ailment—inflammation—which is the bane of thousands, from overwork and fast living in the present day.

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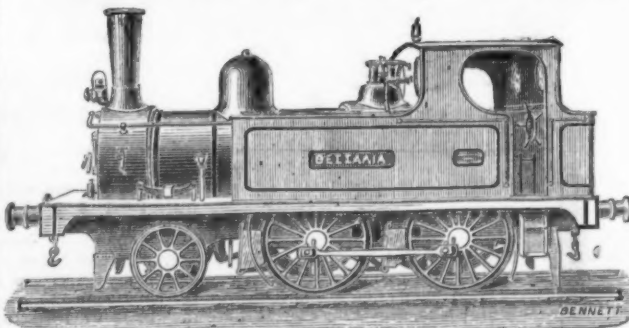
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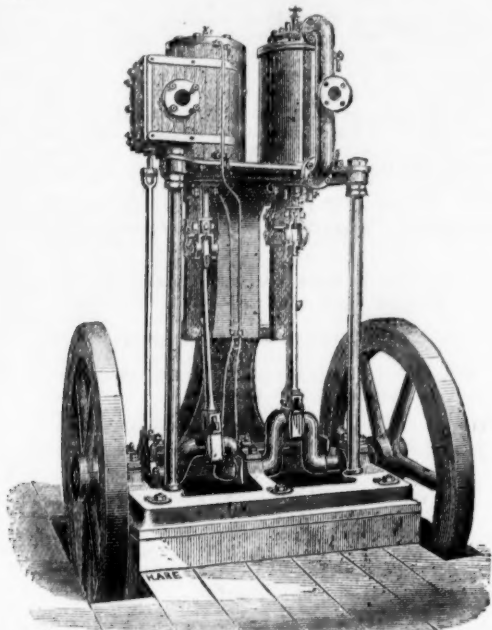
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TUBES



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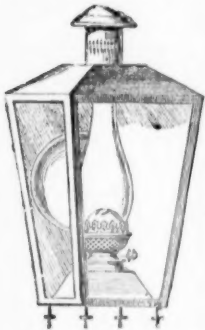
The woodcut represents the first of these Air Compressors. It has been working in Cornwall from early on Monday morning to Saturday night, each week for nearly two years, with only the attention required for an ordinary good steam-engine. Since this was started on the Proprietor's own contract work, others have been erected in the county, and orders are in hand.

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ENGINEER,  
63, QUEEN VICTORIA STREET, LONDON.

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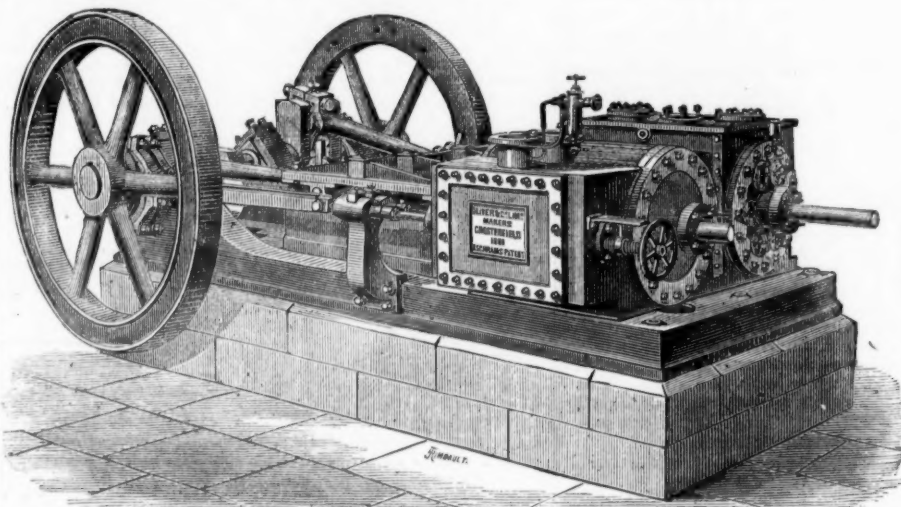
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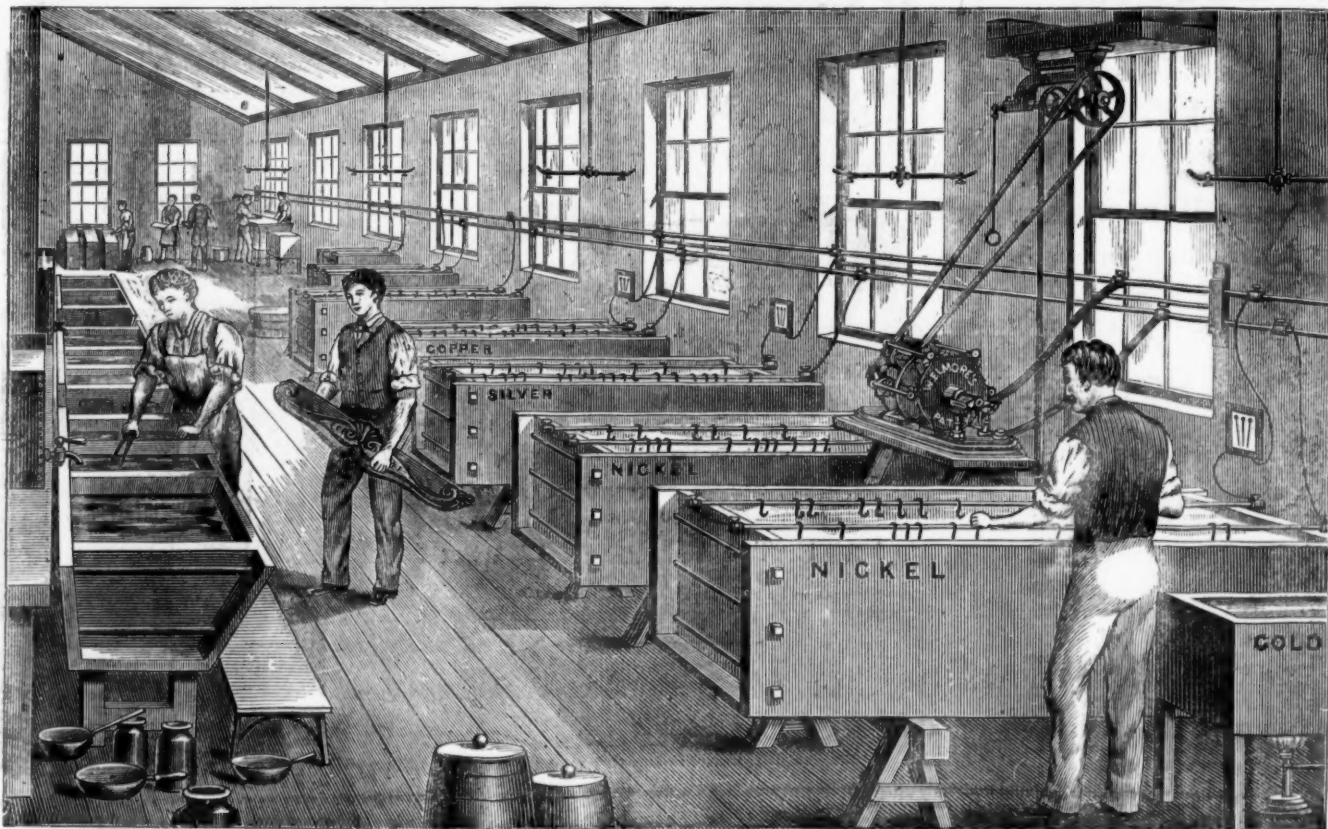
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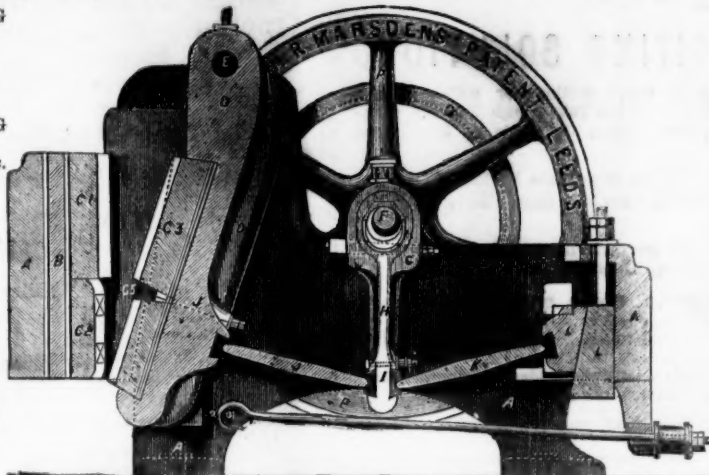
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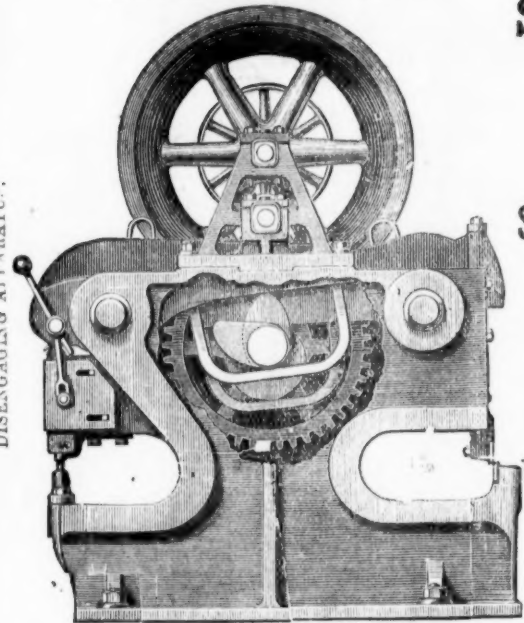
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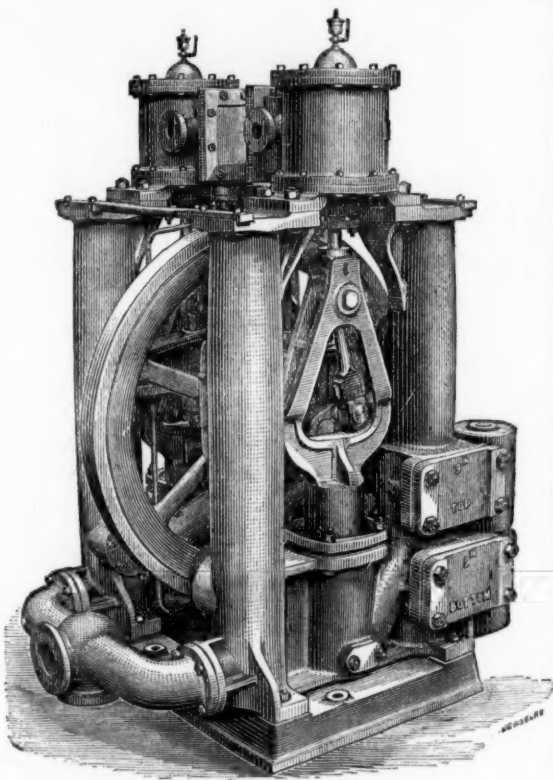
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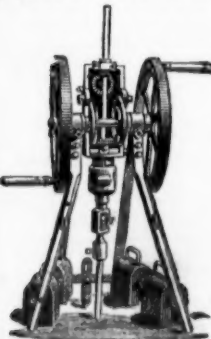
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